MANUFACTURING SECTOR IN KERALA
A STUDY OF SCALE STRUCTURE AND GROWTH

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I hereby affirm that the research for this dissertation titled "Manufacturing Sector in Kerala : A Study of Scale Structure and Growth", being submitted to the Jawaharlal Nehru University for the award of Master of Philosophy in Applied Economics, was carried entirely by me at the Centre for Development Studies, Trivandrum.

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Certified that this dissertation, the bonafide work of Ms.Alice Albin has not been considered for the award of any other degree by any other University.

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CONTENTS

Chapter 1

INTRODUCTION: A REVIEW OF LITERATURE

1. Regional Variation in Industrial Growth

The recession in the Indian economy which started during the mid-sixties and continued for at least ten years has been a fertile topic of discussion among many economists. It marked a watershed in more ways than one. It focussed attention away from techniques of planning and plan models to critical studies and policy issues. Many intresting hypotheses were put forward to explain the "stagnation".[1] As the debate progressed it was also realised that there were sharp differences between groups of industries in their growth experience although most industries had slackened in their growth. Similarly, there have been sharp regional variations in the impact of the 'stagnation'. With the data for the eighties having become available it is even claimed that the recession of the mid sixties could not be called a stagnation, for the recession had a duration of less than about ten years, after which growth picked up.[2] Yet, the sharpness of the regional variation remains and so industrial growth in India particularly since the mid-sixties is claimed in some circles as "fractured" phenomenon.[3]

Our point of departure is not so much the question of industrial stagantion or recession as the regional variations in growth experience. The fact of increasing disparities is hardly unexpected since both theory and empirical studies from already industrialised countries would tell us that the industrial

transformation is accompanied by increasing regional inequality, which declined only in the later phases of industrialisation. In other words, an inverted U-shaped curve of regional inequality overtime is obtained.[4] There are however varying opinions as to the importance of structural and regional factors and the impact of each in the growth of a region/state. The idea implicit in the explaination in terms of 'structural' factors is this: given the fact of different industrial composition of the output of regions (i.e.industrial base) the inter industry variation in growth gets transmitted as inter regional variations. An attempt to quantitatively extract the importance of the underlying structural factors in regional variation in all-India came to the conclusion that structural factors as expected have declined in their importance and also that structural factors are of less importance as compared with purely regional factors.[5] A somewhat different attempt to explain the variation in industrial growth of Kerala vis-a-vis that of India suggested that structural factors could be equally important as regional factors.[6] Thus the issue as such remains very much open.

2. The Role of Organisational Categories

We would carry on this discussion later, but at this juncture we would argue that structural factors should be broadened to include not merely the variation in industry composition of value added or output but also the variation of the industrial sector in terms of its organisational composition - household industries, organised industries, factories-small/large/medium/ etc. The regional variations in growth are also 'explainable' in terms of these scalar dimensions of the

organisational structure. This is particularly relevant not only because size-class wise industries have shown different growth rates but also because they are expected to grow at different rates at different levels of development of the economy. Thus, household and handicrafts industries have generally declined as the industrialisation process set in but small firms have shown a mixed pattern.[7] Despite variations across countries it has been claimed that small firms have perhaps shown a slow increase in the early phases of industrialisation followed by an accelerated expansion in the next phases which levels off only in the last phase. On the other hand, large firms have shown a more steady increase and their growth accelerates only towards the end of the last phase.[8]

In the Indian case we know that different size classes of factories have shown different growth rates.[9] Furthermore, there is evidence to show that the non-factory units are growing at a faster rate than factory units. Vaidyanathan and Eapen[10] found that employment in the non-household non-factory sector has shown a much faster growth than other organisational sectors between 1961 and 1981. Equally, important is their finding that in nearly all the states household units have declined both relatively and absolutely, and that the extent of decline showed variation among the states.

The same study also showed a marked change in the distribution of employment between rural and urban areas. There is also a change in the relative importance of different forms of manufacturing within each. Census data show that there is increase in urban employment between 1961 and 1981. During the same period there was an increase in employment in household

industry in the urban areas. Thus the structural pattern in terms of size class could constitute an important variable explaining the regional variation between states in India.

Dennis Anderson's[11] illustration of the pattern of industrial structure and the direction of change during the different phases of industrial growth is particularly illuminating. On the average, India is in the phase of declining household industries with increase in small factories and non household units. This fits in well with its given per capita income. Given the wide variation in the prior levels of development, growth of industries in a region/state in the subsequent phase may therefore be explainable in terms of expected performance of different organisational classes. We may well find some states in India in the first phase of declining household industry with slow growth of small units and large industry. A few advanced states we would expect to be in the end of the second phase (accelerated development of small industries and further accelerated decline in household industries with steady growth of large industries) while most states would be in the beginning of the second phase.

A variant of the structure explanation is investigation into differences in industrialisation among the regions in terms of linkage potential of industries in different regions as attempted by Alagh, Subrahmanian and Kashyap.[12] These studies show that in early post independence period the regions around the metropolitan cities had a well diversified industrial structure. Most other regions however had one or two or at best three sectors which constrained growth (i.e.in regions other than the metropoliton regions) due to the limited linkage

potential offered by the few sectors. Analaysis of regional growth in a regional input output framework for Gujarat also shows that growth has been confined to a set of industries in which the region has specialised.[13] Similarly, results have been obtained by working with the industrial base concepts (location and specialisation coefficients) of a region as Subhramanian and Kashyap[14] and Subramanian and Pillai[15] have argued.

It is instructive, however, to note that over the period since independence there has been some degree of diversification in some non metorpolitan regions. Added to this is the fact that certain states (eg Gujarat, Karnataka and Punjab) starting from a not too diversified structure have grown very fast, while there has been very little growth in a well diversified region like West Bengal. These facts point to the limitations of "structural" explanations to variation in growth between states over long period, as altogether new industrial 'base' or structure can emerge.

It can be argued that structural analysis or linkage potential based analysis are in fact only a sophisticated way of hypothesing from the well known agglomeration and scale economies. But as industrialisation deepens in metropolitan areas, factors specific to the region such as higher cost of land and labour generate a counter tendency for industries to move elsewhere. Under such conditions, secondary regions may compete with each other to attract the industries dispersing away from the centres and the differences in the growth rates of the secondary regions would depend on their ability to attract these as well as all together new industries. It is here that regional factors play a crucial role. The extreme primitiveness of the

industrial structure of a secondary region, may be overpowering in structurally excluding it from this process of relocation. But for other secondary regions with a not too primitive structure regional factors can be important in explaining their differential ability to attract new industries. During crucial short periods when regional shifts do take place away from the dominant centres, the secondary centres which at the same time have favourable regional factors may be able to lay the foundation in terms of a new industrial base which can grow further in the future.

3. Objectives of the Study

An important focus that emerges from the foregoing discussion is the "structural" versus "regional" paradigm in explaining variation in regional industrial development. This study explores in detail the role of structural and regional factors in explaining the observed trend and pattern of a region's growth experience by taking Kerala as a case study. We analyse the growth performance of the manufacturing sector in Kerala in comparison with other regions in the South India. Indeed, regional and structural factors are studied but encompassing in the scope the organisational aspects. In short, the focus of the study is on the growth performance of the manufacturing sector by scalar dimensions in Kerala. We may define the scope of the study with the help of a critical review of literature on industrialisation in Kerala.

4. Industialisation in Kerala: A Review of Literature

Almost all studies on industrialisation in Kerala

underlined the region's industrial backwardness. There are however differences about the underlying causes. Various hypothesis have been put forward in the literature to explain industrial backwardness in Kerala.

One of the explanations of Kerala's backwardness is offered in terms of its industrial structure. As high as 93.5% of Kerala's factory labour in the manufacturing sector was enagaged in agro-based industries in 1962. These industries accounted for 82.8% of the value added in manufacturing. Metal based industries, machinery and transport equipment employed a comparitively low proportion (6.52%) of the factory labour in Kerala. Their share in value added was only 12.2%. The situation has not changed much over the years. The share of the agro based industries in employment was 76.8% in 1981. However their share in value added showed a decline. It was only 35.9% in 1981. Needlesss to say, Kerala's industrial structure did not provide a dynamic base for the growth of modern industries and the lop sided character of industrialisation with heavy bias on agro processing industries continued unabated.

An attempt[18] to quantitatively extract the importance of underlying structural factors in terms of industrial base concepts revealed some interesting features in Kerala's industrial growth. Kerala's industrial base in 1965 consisted of a set of inter related agro based and non metallic mineral based industries and universal intermediaries. The picture in 1981 was no different. The specialisation coefficient in Kerala shows a concentrated industrial base in 1960. However it has shown a declining trend in 1978. Such an industrial structure leads us to suggest that the backwardness in Kerala is linked to its lopsided

industrial structure and that structural factors are important in determining the growth of the region.[17]

We will now go on to a brief examination of the other hypotheses put forward. An important factor that is considered to be a constraint to the growth in Kerala is the high wage rates. Oommen[18] has claimed that higher wage rates in Kerala have led to the shifting away of industries to neighbouring states. In a primary survey of 124 Kerala units working in Karnataka (61 units) and Tamil Nadu (63 units) it was found that the single most important reason for choice of location was the availability of cheap labour. About 71% of units in Tamil Nadu and 83% in Karnataka were small units i.e. units employing less than 50 workers. Further, a study on the traditional industries (cashew, beedi and coir) which are situated outside Kerala found that the major reason for shifting out was the availability of cheap and non-unionised labour, absence of minimum wage regulations and absence of restriction on the movement of raw materials in states like Tamil Nadu.[19] However, empirical evidence of a different nature does not support this. The study by Subrahmanian and Pillai[20] based on the factory sector of the ASI in Kerala found that wage rates as well as labour productivity were lower in Kerala as compared with India. Higher wage rates were found in industries in which the state had no specialisation and these industries also had higher labour productivity.

Another explanation of Kerala's backwardness is given in terms of labour militancy. Oommen's survey in Karnataka and Tamil Nadu showed that there were fewer work stoppages and labour strikes than in Kerala and a generally peacefully atmosphere exist.[21] But Subrahmanian and PIllai[22] have argued that the

militant nature of labour could be reflecting the peculiarities of the industrial structure which is dominated by traditional and agro based industries which face severe problems. As the study has pointed out the mandays lost in other states like Tamil Nadu and Maharashtra were equally high. The evidence as regards labour militancy does not lead us very far. It seems that more than narrow economic rationality, personal factors, psychological attitudes emerging out of an experience of militant labour may be deep and persistent enough so that entrepreneurs do not change their attitudes even when conditions change.[23]

Furthermore, Kerala is considered to have locational disadvantage in terms of total cost and their components. The cost of production is taken in terms of share of major components (fuel, raw material, othr inputs, emoluments, rent, interest, depreciation and profits) in the value of output and it is shown that industries in Kerala have higher material cost and interest component as compared with all India. Only in wood, paper and paper products does the state have a lower material cost.[24] This would suggest inefficiency in material transformation i.e. higher input cost in manufactruing sector in Kerala.

It is doubtful whether we can use cost of fuel, raw material, other inputs, emoluments, rent, interest depreciation and profit as a proportion of output as an indicator of prices of these input to the firm. Because only if the firms have the same production structure in terms of the actual activities can we make such a conclusion. At the 2 digit level of disaggregation the low or high material cost for instance may just be due to the fact that there is a difference in the output at 2 digit level or activity at that level. For example, take the industry group 20-

21(Food Products), in Kerala the output consists of mainly cashew where as in India it would be something other than cashew. So it is strictly not possible to make comparison of unit material cost i.e. cost per kg of coal, per unit of electricity, per unit of a specific raw material from value data obtained from the ASI data.

Inadequate number of entrepreneurs has been claimed to be another major constraint on industrial growth in Kerala. There is a general notion that Malayalees would join an enterprise and run it competently or would deposit his saving in the bank rather than take the risk of starting an enterprise himself.[25] But it is well known that the general literature on entrepreneurship had over-emphasied the role of indegenous entrepreneurship in development. The development of entrepreneurship has been shown to be quite elastic and itself a function of economic growth.[26] Even if entrepreneurship is not dynamic enough in Kerala, it may merely reflect the regional factor (beyond their direct control) which prevented their growth and development. It is well established that in the pre independence period there were Syrian Christian entrepreneurs who developed the plantations. Though European companies owned the large plantations, by 1933 a large number of smaller plantation came to be owned by indigenous capital.[27] Similarly, reclamation of paddy land from backwaters is also an example of entrepreneurial drive.[28] Most scholars of Kerala's contemporry history would reject the notion that Kerala was particularly short of pioneering entrepreneurs. Entrepreneurship is no doubt important for industrial growth, but this does not mean that a region which lacks entrepreneurial ability would remain backward. Thus lack of entrepreneurship even

if proved to be, cannot constitute a total explanation for the relatively poor performance of Kerala's industries.

There was no dearth of skilled and semi skilled labour in the state. A wide spread educational base and social ethos should have made the region attractive for setting up skill intensive and technology-oriented modern foot loose industries. The savings rate in the region is also very high and should have facilitated capital formation.[30] In terms of availability of physical and social infrastructure the state is well placed. On the basis of CMIE index of infrastructure covering 16 indicators the state was ranked fourth among the states in India. Social infrastructure is also well developed in Kerala with extensive welfare programme comparable to advanced countries. These are essential but not sufficient for creating an atmosphere for industrial investment in the state.

It is alleged[31] that during the First Five Year Plan there was no central public sector investment in Kerala. During the second plan it was just Ø.1 percent of the total central public sector investment much less than the states share in total population. There was political instability and conflict in the state and frequent changes in ministries in the political sphere. Local politicians in Kerala were not organised or they lacked the consciousness to lobby for larger share of central public sector investment for the region. This has been argued to be an important reason for the relative neglect of the region by the central government in the post independence period.[32] Given the fact that large levels of public sector investments can alter the industrial base of a region, (as it perhaps happened in Andhra Pradesh, Karnataka and Bihar) the lack or low level, of public

issue.

Another argument has been that Kerala's low state domestic product may have imposed some constraint on the industrialisation acting as a demand constraint through low purchasing power. This arguement may have been valid during the pre 70's. But to use SDP per capita as indicative of the true income of Kerala would certainly be grossly misleading in the seventies and eighties, since Kerala receives remittances from its workers abroad and in other parts of India on a significant and rather special scale as compared to any state in India. In the seventies when a fair amount of emmigration took place remittances to Kerala increased considerably.[33] Indeed, the high income has created a high demand for consumer goods which is perhaps met by imports of goods from abroad and rest of the country. The arguement of low purchasing power per capita as a constraint to growth can now be safetly shelved to the background.

A slow growth or stagnation in agriculture could be a constraint on industrial growth. It can effect the industrial growth both on demand side and supply side. On the demand side a slow growth in agriculture can restrict the demand for industrial goods. On the supply side it effects industrial growth by making raw materials to industry dearer and by increasing the cost of living of the workers. Again surplus obtained in agriculture can be an important source of investment in industry. Thus Raj[40] had argued that higher growth rates of agriculture to certain extent explains higher growth rates of certain regions like Punjab and Haryana. However, there are studies that show that agricultural growth rate in a region does not explain the growth rate of its

growth rate in a region does not explain the growth rate of its industrial sector.[34] Coming to the specific case of Kerala there were land reforms in the late 19th century in Travancore (which is part of present Kerala) which gave protection to the tenants on private land. This led to the rise of a group of rich cultivators (Syrian Christain community) through accumulation of agrarian surplus. Also, the low agriculture rent as compared with Malabar region of Kerala, which was under direct colonial rule helped the accumulation of capital. This was invested in developing commercial crops.[35] It is doubtful whether the boom in commercial agriculture lead to the strong growth of agro processing industries. A heavy investment in modern industries however did not take place in the pre independence period as well as in the post independence period. By way of hypothesis it can be stated that the stagnation in Kerala's agriculture in the early seventies must have affected the prospects of agro processing industries.

Apart from these there are studies[36] that throw light on specific aspects relating to some of the traditional industries of Kerala namely coir, handloom, cashew and beedi. An attempt[37] has also been made to look at the relative importance of both the organised and the unorganised sector of Kerala's non agricultural economy. It tries to understand the process of employment and income gereration in the non-agricultural labour market and also at the differences in the composition of employment and earnings in the organised and unorganised sector in Kerala.

4. The Scope and Scheme of the Study

From the foregoing review of literature it is evident that studies on industrialisation in Kerala is scanty. One aspect

which needs thorough examintion is the growth performance in terms of organisation categories which would also be helpful in explaning the industrial backwardness of Kerala. In doing so the analytical frame should be one which will deal with structural and region-specific factors. Thus viewed, the study is designed to cover in its scope the following aspects.

(1) We trace the pattern of growth in the secondary sector in Kerala vis-a-vis all India and other southern states and within the secondary outline the growth pattern in the manufacturing in terms of employment and value added. This will help us to highlight the broad trends in manufaturing value added and employmenmt in Kerala and how the pattern differ from other southern states and all-India.

(2) Next, we examine the sources of growth in Kerala in terms of productivity of the manufacturing sector in the factory sector as a whole and in the census and sample sector seperately in Kerala. This will give us a better perspective of the growth process in Kerala.

(3) There are very few studies that look at the stucture of industry in Kerala. The studies on industrial structure are generally confined to the output composition of the industry. Attempts to look at the organisational structure of industry in Kerala are rare. We, therefore, examine the basic structure of industries in Kerala in comparison to all-India with industrial composition and organisation as two axis and try to bring out the differences in structure between the two and also changes if any that have occurred overtime.

(4) Region specific factors, as mentioned earlier, can to a great extent influence the industrial growth of a region. An

attempt is made to go into the details of important regional factors: wage rates, labour disputes etc. This helps us to see how important the regionl factors have been in determining the growth of major industries in Kerala.

Each of these aspects are analysied and the results presented in sucessive chapters 2,3,4 and 5. The analysis is based on data collated from secondary sources such as, the Census, the National Accounts Statistics (NAS), the Annual Survey of Industries (ASI), the report on the Survey of Directory Manufacturing Industries (DME), 1978/79, and the report on Survey of Non Directory Manufacturing Establishments and Own Account Enterprises (NDME+OAE) ,1978/79. A note on the ASI and the NAS is given in Appendix 1. The Census, the survey on the DME and the NDME+OAE are discussed in Section I of chapter IV. Finally, Chapter 6 sums up the major findings and underlines their significance as critical elements in any meanigful policy framework for accelerating the growth of manufacturing sector in Kerala.

Notes and References

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Chapter II

GROWTH TRENDS IN MANUFACTURING SECTOR

In this chapter we review the trends in industrial growth of Kerala in general and the growth trends in the manufacturing sector in particular, bringing out the peculiarities of Kerala pattern in comparison to all India and other southern states, Tamilnadu, Karnataka and Andhra pradesh. The important sources of data for the analysis are the National Accounts Statistics (hereafter NAS), the Estimates of State's Domestic Product (hereafter SDP) and the Annual Survey of Industries (hereafter ASI). A note on the data sources, the adjustment needs and their limitations are given in Appendix I. Section I of this chapter uses the NAS and SDP data to bring out the trends in state income by industry of origin in Kerala. Section II uses the ASI data to trace the growth trends in the factory sector.

Section I

State Domestic Product by Industry of Origin

General Trends

We observe from Table 2.1 that the per capita net domestic product (at constant 1970-71 prices) of Kerala was if anything a little higher than the all India average in the early fifties. But overtime the situation seemingly has deteriorated with all India average marking a higher value than that of Kerala. In striking contrast, Andhra Pradesh and Karnataka improved their relative positions in terms of per capita income

Table 2.1: Per capita Manufacturing value added and net domestic product

(Rupees)

	Year	India	Andhra Pradesh	Karnataka	Kerala	Tamil Nadu
Per capita net domestic product at 1970-71 prices	1950-51	446.0	-	-	460.0*	-
	1960-61	562.0	530	526	509.0	558
	1970-71	633.0	585	641	594.0	581
	1981-82	711.0	721	717	667.0	666
Percapita total manufacturing product at 1970-71 prices	1950-51	37.53	-	-	48.33	-
	1960-61	67.32	37.34	66.74	47.12	79.20
	1970-71	85.37	51.33	98.62	74.01	112.40
	1981-82	105.49	75.12	144.40[1]	106.26[1]	169.73[1]
Percapita registered manufacturing product at 1970-71 prices	1950-51	20.16	-	-	23.69	-
	1960-61	38.62	14.01	25.74	21.13	43.76
	1970-71	53.12	24.08	51.30	33.29	64.84
	1981-82	67.17	40.19	83.28[1]	59.85[1]	96.64[1]
Percapita unregistered manufacturing product at 1970-71 prices	1950-51	17.38	-	-	24.38	-
	1960-61	28.70	23.33	41.00	26.00	35.26
	1970-71	32.25	27.25	47.32	40.72	47.56
	1981-82	38.32	34.94	61.12	46.40	73.09

Source: For India NAS and for states SDP.

Notes:

(*) Data relates to Travancore-Cochin exclusive of Malabar region

(-) Data not available

(1) Provisional Results

overtime. The performance of Tamilnadu was also better than Kerala.

The relatively poor performance of Kerala is also reflected in the contribution of manufacturing sector. Instructively, SDP data show that Kerala's per capita manufacturing product was significantly higher (Rs.48) than India's (Rs.37) in 1950.[1] This was not accidental, as the Travancore state in Kerala had actively encouraged industrialisation in the thirties and the forties. A class of dynamic entrepreneurs - the Syrian Christians had emerged in the early 20th century.[2] As the taxation was not heavy there was was significant agricultural and industrial development. Thus Kerala was relatively more advanced had a better industrial base than most regions (other than those around the metropolitan cities Bombay, Calcutta and Madras) at the time of independence. Yet in 1960-61, after two five plans Kerala actually showed a fall in per capita manufacturing product. The import substitution programme of the second plan largely bypassed Kerala.

In the sixties and seventies also Kerala's growth rate in per capita manufacturing output was less than all India. Thus Kerala can be said to have remained industrially backward when the reference is made to the average performance at all India. The relative backwardness becomes all the more clear When the comparison is made with Karnataka: Kerala's per capita manufacturing output was about 40% less. Only in comparison with Andhra Pradesh does Kerala's manufacturing appear better. But we must remember that Andhra Pradesh is a large agrarian state and where the process of industrialisation started only in the post independence period.

The relative stagnation of Kerala's industries come into sharper focus when we look at the weights and performance of registered manufacturing. Except in 1950-51, registered manfuacturing was always at a low level in Kerala when compared to all India, Karnataka, Tamil Nadu. The gaps between Kerala and all India level or other southern states have only widened. Registered manufacturing grew at a slow pace in Kerala. It actually declined significantly in the fifties, and increased in the 60's and 70's, but was still far below the level of all other states except Andhra Pradesh and India. The gap between Kerala and the other states in unregistered manufacturing has been relatively less.

Special Features of the Trends

To bring out the growth of the manufacturing sector in Kerala, in a comparative perspective we have plotted NDP in manufacturing sectors (SMA), in registered manufacturing (SMAR), in unregistered manufacturing (SMAU), in agriculture (PAGR) in the total tertiary sector and total net domestic product (sdp), for India, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. The natural logarithm of these variables have been plotted, after converting the logarithm to an index, with 1960-61 as the base year. Such a transformation makes the comparison easier. Since they have been plotted as natural logarithms, trend growth rates can be easily read off as the shape of a line that passes through two points of concern, or as a approximate least square line that straddles several points of a period respectively. Table 5.2a-to 5.2e give the index of log values with 1960/61 as base. We first review the growth in these variables in India, then in the four

states.

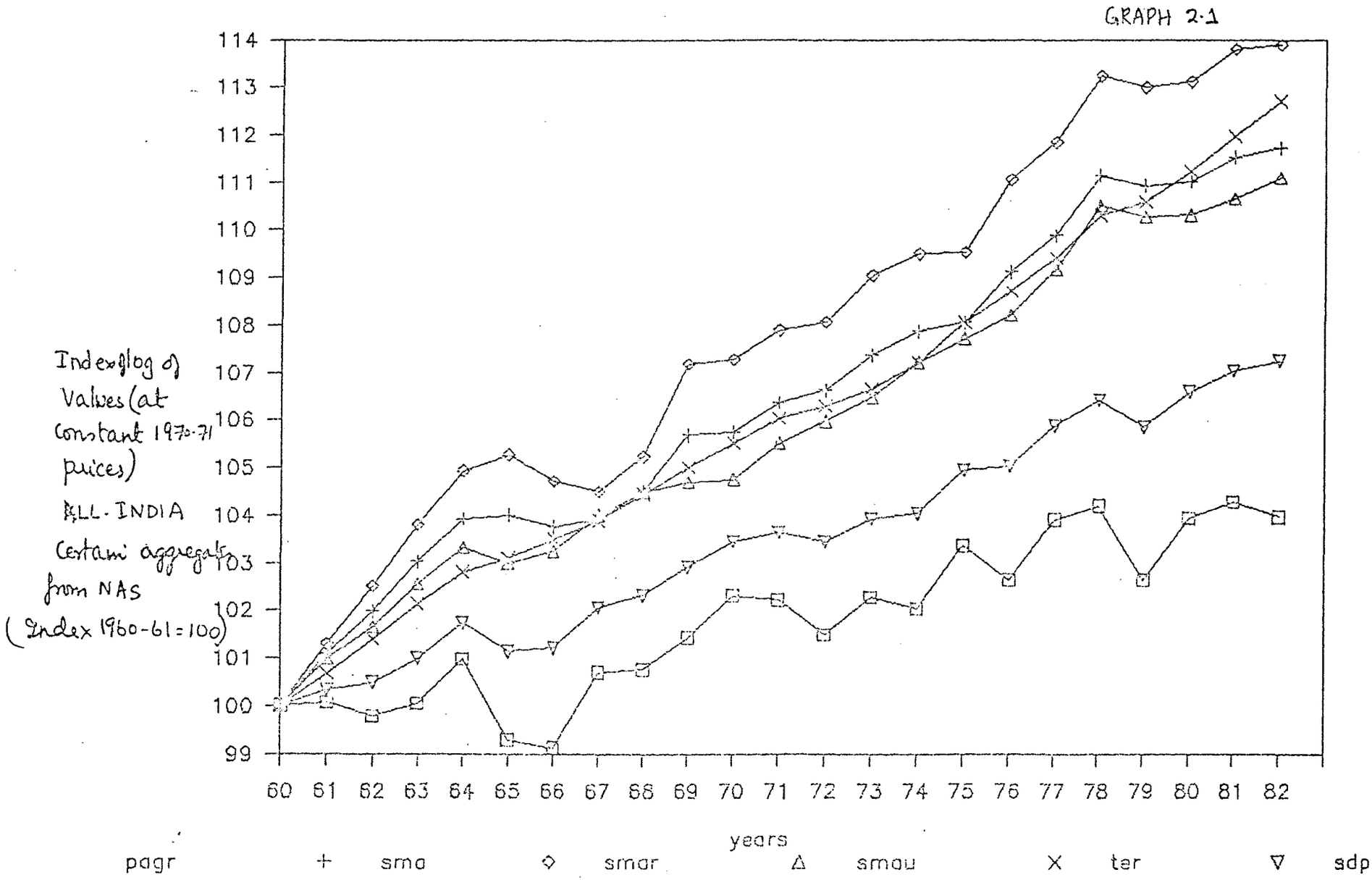
Consider Graph 2.1, Registered manufacturing (SMAR) shows a high rate of growth during the second Plan, more precisely during 196Ø-64, when it grew steadily as is indicated by the section of SMAR which is a straight line with steep slope during this period. The 1964 marked the beginning of the industrial stagnation of the mid sixties as the trend in SMAR clearly breaks off for a lower value between 1964 and 1965. But growth which was still positive in 1965 becomes negative in the next two years to rise only from 1967. For no period of more than three years does the trend ever reach that level during 196Ø-64. During 1976,1977,1978 the trend came very close to that of 196Ø-64 but fell to a lower level thereafter. We may periodise the behaviour of SMAR into the following:(1) the period of high growth during 196Ø-64,(2) the recession of the mid sixties (1964-68),(3) the recovery at a very weak rate from 1969-1976, (4) a somewhat higher growth during the next three years up to 1978, and (5) further recession from 1978 to 1982.

The trends in total manufacturing (SMA) followed essentially the same pattern, with the difference that SMA grew more slowly than SMAR during 196Ø-64, thus keeping the SMA trend below but parallel to the SMAR thereafter.

In other words, SMAU grew at a significantly lower rate than SMAR during 196Ø-64. The recession was less severe in SMAU as compared to its' growth in 196Ø-64 but the recession lasted longer upto 197Ø. The recovery started only in 1971, but was at a rate that very nearly matched the pre 64 growth rate. SMAU too showed a second recession after 1978.

The tertiary sector grew at a fairly uniform rate

GRAPH 2.1


Index(log of Values (at Constant 1970-71 prices)
ALL-INDIA
Certain aggregates from NAS
(Index 1960-61=100)
114
113
112
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106
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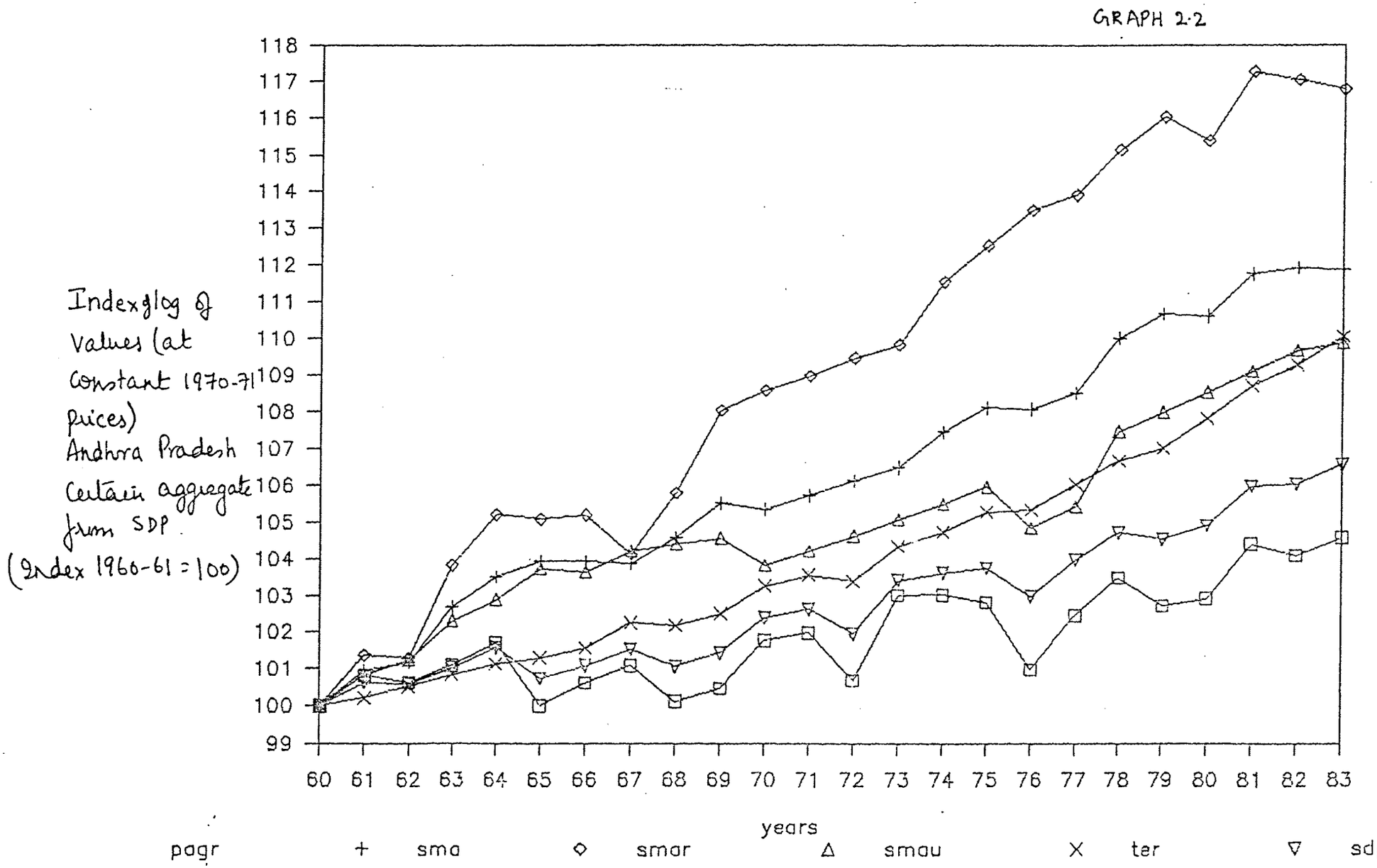
103
102
101
100
99
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82
years
pagr + smo ◇ smar △ smou × ter ▽ sdp

GRAPH 2.2


Index log of Values (at Constant 1970-71 prices) Andhra Pradesh Certain aggregate from SDP (Index 1960-61 = 100)
118
117
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100
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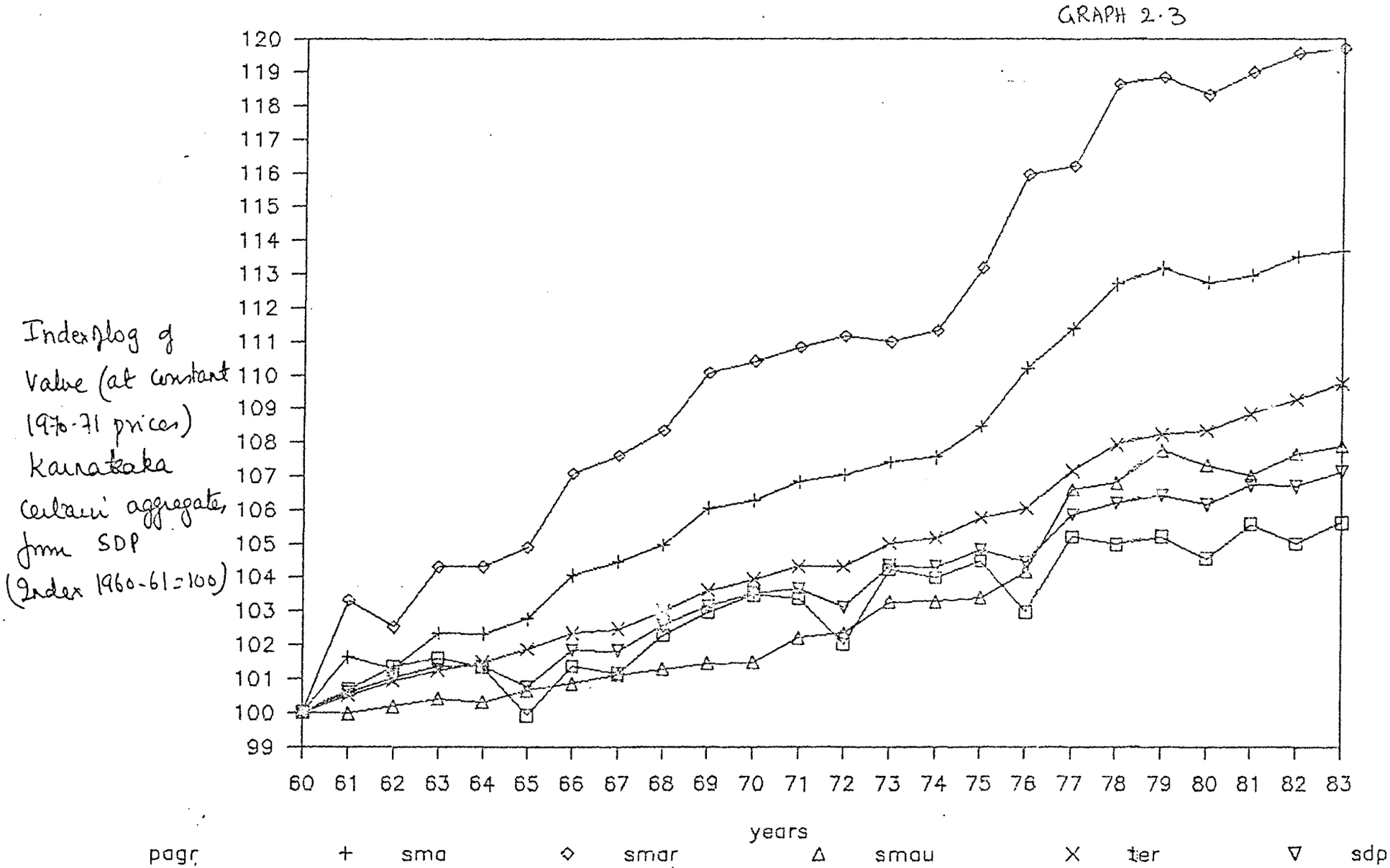
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
years
pagr + sma ◇ smar △ smau X ter ▽ sdp

GRAPH 2·3


Index log of Value (at constant 1970-71 prices) Karnataka (selected aggregate from SDP (Index 1960-61=100)
120
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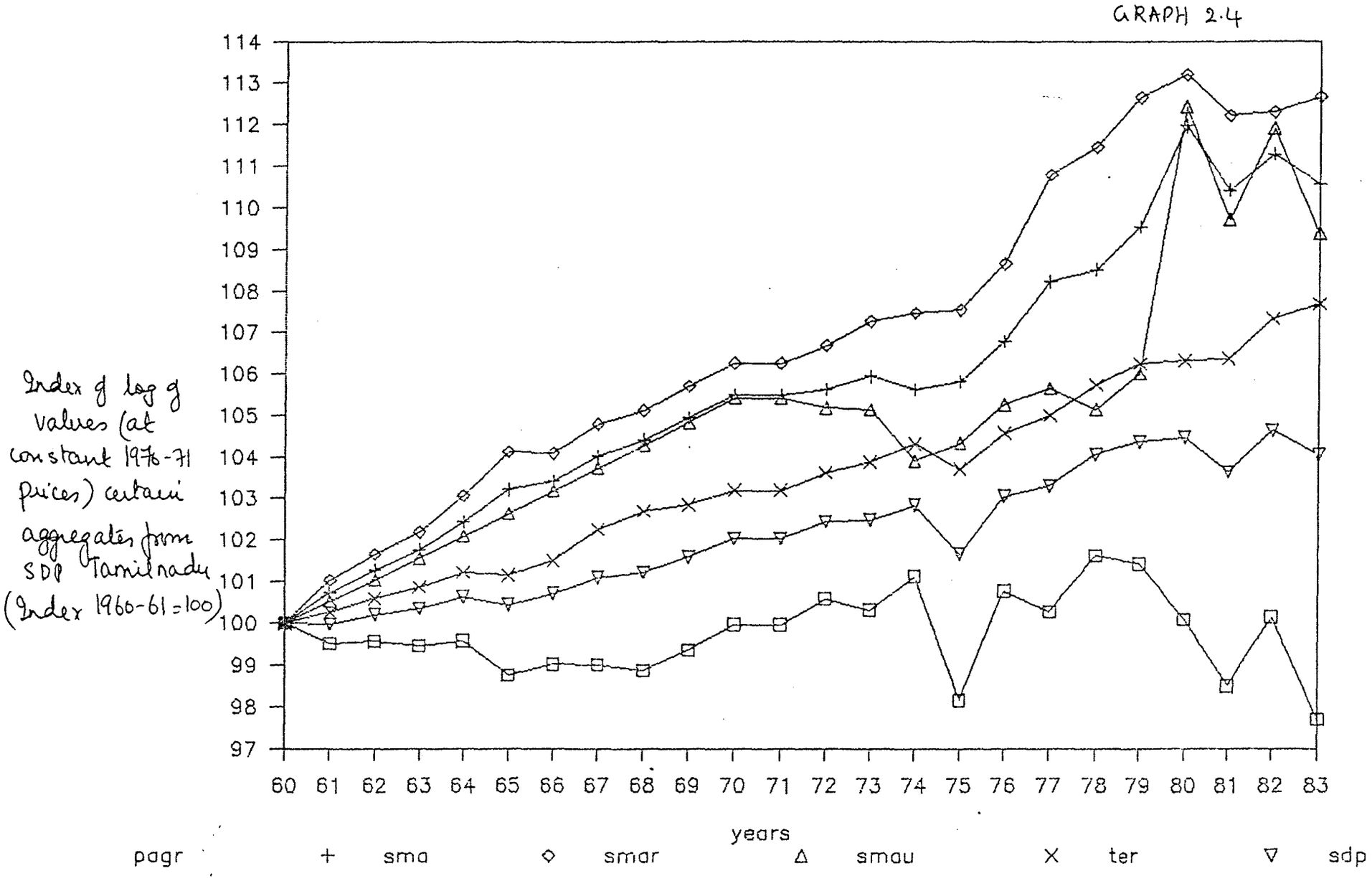
years
pagr + sma ◇ smar △ smau × ter ▽ sdp

GRAPH 2.4


Index of log of values (at constant 1970-71 prices) certain aggregates from SDP Tamilnadu (Index 1960-61=100)
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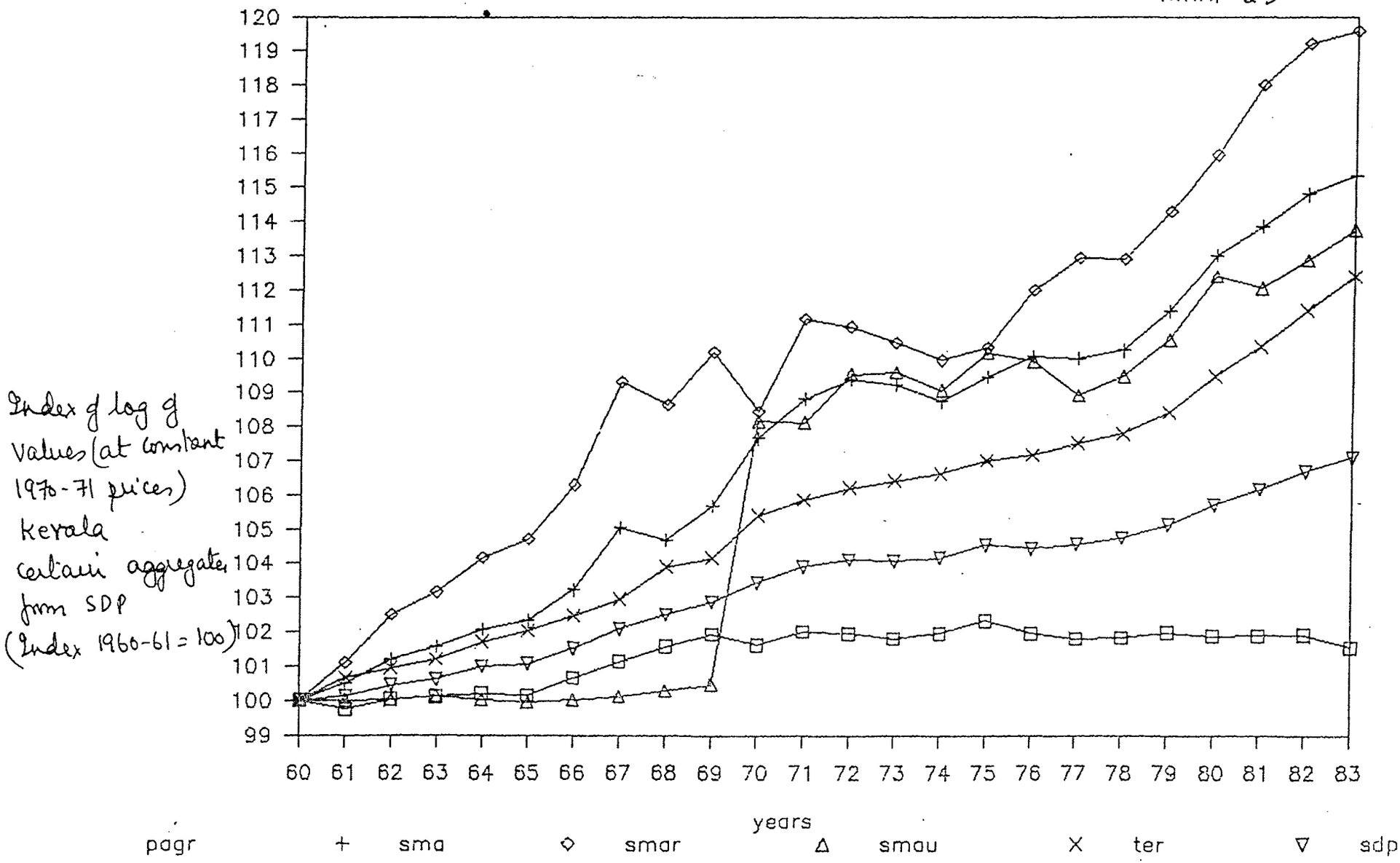
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
years
pagr + sma ◇ smar △ smau × ter ▽ sdp

GRAPH 2.5


Index of log of Values (at constant 1970-71 prices) Kerala certain aggregates from SDP (Index 1960-61 = 100)
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100
99
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
years
pagr + sma ◇ smar △ smau × ter ▽ sdp

Table 5.2(a) Index of log Values of certain aggregates, India

Year	PAGR	SMA	SMAR	SMAU	T	SDP
1960	100.00	100.00	100.00	100.00	100.00	100.00
1961	100.07	101.06	101.28	100.99	100.68	100.33
1962	99.78	101.97	102.51	101.65	101.39	100.48
1963	100.04	103.02	103.81	102.56	102.13	100.98
1964	100.98	103.92	104.94	103.31	102.81	101.73
1965	99.28	104.00	105.27	103.00	103.11	101.14
1966	99.11	103.73	104.71	103.24	103.48	101.20
1967	100.69	103.93	104.50	104.00	103.89	102.05
1968	100.75	104.54	105.23	104.48	104.43	102.31
1969	101.41	105.68	107.19	104.70	105.00	102.91
1970	102.30	105.75	107.28	104.74	105.51	103.45
1971	102.21	106.37	107.89	105.51	106.03	103.63
1972	101.47	106.63	108.07	105.98	106.29	103.44
1973	102.26	107.36	109.04	106.48	106.66	103.92
1974	102.03	107.87	109.49	107.21	107.20	104.03
1975	103.36	108.06	109.52	107.72	108.06	104.95
1976	102.64	109.11	111.06	108.22	108.71	105.03
1977	103.91	109.89	111.84	109.18	109.41	105.88
1978	104.19	111.15	113.24	110.51	110.31	106.42
1979	102.64	110.94	113.00	110.27	110.58	105.86
1980	103.94	111.06	113.11	110.31	111.23	106.59
1981	104.28	111.53	113.80	110.66	111.98	107.04
1982	103.96	111.72	113.89	111.09	112.71	107.24
1983	128.28	133.19	134.01	139.20	136.35	128.19

Source: National Account Statistics, Central Statistical organisation, various issues.

Note:
PAGR = Primary agriculture
SMA = Secondary manufacturing
SMAR = Secondary manufacturing (registered)
SMAU = Secondary manufacturing (unregistered)
T = Tertiary
SDP = State Domestic Product

Table 5.2(b) Index of log values_of certain aggregates, Andhra Pradesh

	PAGR	SMA	SMAR	SMAU	TER	SDP
1960	100.00	100.00	100.00	100.00	100.00	100.00
1961	100.82	100.95	100.36	100.83	100.21	100.62
1962	100.62	101.17	101.29	101.24	100.52	100.59
1963	101.09	102.67	103.83	102.30	100.84	101.03
1964	101.71	103.50	105.20	102.88	101.13	101.58
1965	99.99	103.92	105.07	103.72	101.30	100.74
1966	100.62	103.92	105.18	103.63	101.55	101.08
1967	101.10	103.88	104.12	104.20	102.25	101.53
1968	100.11	104.56	105.79	104.39	102.16	101.07
1969	100.47	105.49	108.03	104.55	102.49	101.43
1970	101.76	105.34	108.57	103.81	103.24	102.36
1971	101.98	105.70	108.98	104.20	103.55	102.61
1972	106.68	106.12	109.46	104.61	103.37	101.94
1973	102.98	106.49	109.83	105.04	104.32	103.40
1974	103.00	107.45	111.54	105.49	104.72	103.61
1975	102.81	108.11	112.53	105.95	105.26	103.74
1976	100.99	108.07	113.49	104.84	105.32	102.96
1977	102.47	108.52	113.90	105.42	106.02	103.97
1978	103.48	110.01	115.14	107.45	106.66	104.70
1979	102.71	110.67	116.03	107.99	107.00	104.52
1980	102.92	110.62	115.39	108.53	107.83	104.90
1981	104.40	111.75	117.27	109.10	108.69	105.96
1982	104.08	111.91	117.04	109.67	109.28	106.02
1983	104.58	111.89	116.78	109.89	110.07	106.56

Source: The Estimates of State Domestic Product 1960/61 to 1982/83, Central Statistical Organisation.

Note: same as table 5.2(a).

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Table 5.2(c): Index of Log Values of certain aggregates, Karnataka.

	PAGR	SMA	SMAR	SMAU	T	SDP
196Ø	1ØØ.ØØ	1ØØ.ØØ	1ØØ.ØØ	1ØØ.ØØ	1ØØ.ØØ	1ØØ.ØØ
1961	1ØØ.68	1Ø1.63	1Ø3.3Ø	99.97	1ØØ.49	1ØØ.58
1962	1Ø1.36	1Ø1.31	1Ø2.52	1ØØ.17	1ØØ.92	1Ø1.Ø4
1963	1Ø1.59	1Ø2.34	1Ø4.3Ø	1ØØ.4Ø	1Ø1.23	1Ø1.38
1964	1Ø1.33	1Ø2.3Ø	1Ø4.31	1ØØ.3Ø	1Ø1.48	1Ø1.35
1965	99.9Ø	1Ø2.75	1Ø4.89	1ØØ.65	1Ø1.86	1ØØ.76
1966	1Ø1.35	1Ø4.Ø6	1Ø7.Ø7	1ØØ.85	1Ø2.32	1Ø1.83
1967	1Ø1.15	1Ø4.46	1Ø7.61	1Ø1.11	1Ø2.45	1Ø1.82
1968	1Ø2.28	1Ø4.95	1Ø8.34	1Ø1.28	1Ø2.98	1Ø2.55
1969	1Ø2.94	1Ø6.Ø4	11Ø.Ø4	1Ø1.43	1Ø3.58	1Ø3.13
197Ø	1Ø3.47	1Ø6.27	11Ø.4Ø	1Ø1.47	1Ø3.93	1Ø3.52
1971	1Ø3.34	1Ø6.81	11Ø.82	1Ø2.2Ø	1Ø4.3Ø	1Ø3.65
1972	1Ø2.Ø2	1Ø7.Ø3	111.15	1Ø2.34	1Ø4.31	1Ø3.11
1973	1Ø4.2Ø	1Ø7.4Ø	11Ø.98	1Ø3.25	1Ø4.99	1Ø4.32
1974	1Ø3.98	1Ø7.56	111.32	1Ø3.27	1Ø5.15	1Ø4.29
1975	1Ø4.48	1Ø8.48	113.19	1Ø3.38	1Ø5.76	1Ø4.83
1976	1Ø2.95	11Ø.2Ø	115.95	1Ø4.16	1Ø6.Ø3	1Ø4.45
1977	1Ø5.19	111.39	116.2Ø	1Ø6.59	1Ø7.16	1Ø5.86
1978	1Ø4.97	112.69	118.65	1Ø6.78	1Ø7.92	1Ø6.19
1979	1Ø5.2Ø	113.19	118.84	1Ø7.76	1Ø8.23	1Ø6.43
198Ø	1Ø4.56	112.75	118.33	1Ø7.31	1ØØ.33	1Ø6.14
1981	1Ø5.57	112.95	118.99	1Ø7.ØØ	1Ø8.83	1Ø6.72
1982	1Ø4.99	113.51	119.56	1Ø7.65	1Ø9.25	1Ø6.69
1983	1Ø5.61	113.68	119.7Ø	1Ø7.87	1Ø9.74	1Ø7.11

Source: The Estimate of State Domestic Product, 196Ø/61 to 1982/83, Central Statistical Organisation.

Note: same as table 5.2(a)

Table 5.2(d): Index of Log Values of certain aggregates, Tamil Nadu

	PAGR	SMA	SMAR	SMAU	T	SDP
1960	100.00	100.00	100.00	100.00	100.00	100.00
1961	99.50	100.74	101.03	100.51	100.26	99.97
1962	99.57	101.28	101.65	101.03	100.59	100.19
1963	99.45	101.77	102.19	101.56	100.87	100.35
1964	99.57	102.45	103.06	102.09	101.22	100.63
1965	98.75	103.22	104.13	102.63	101.16	100.45
1966	99.01	103.43	104.09	103.17	101.51	100.71
1967	99.00	104.01	104.79	103.72	102.26	101.09
1968	98.86	104.41	105.11	104.27	102.69	101.23
1969	99.35	104.95	105.70	104.83	102.84	101.59
1970	99.96	105.47	106.26	105.40	103.19	102.04
1971	99.96	105.47	106.26	105.40	103.19	102.04
1972	100.57	105.62	106.69	105.18	103.61	102.44
1973	100.31	105.93	107.27	105.13	103.87	102.47
1974	101.12	105.62	107.46	103.90	104.31	102.83
1975	98.14	105.81	107.46	103.90	104.31	102.83
1976	100.76	106.79	108.66	105.26	104.57	103.05
1977	100.27	108.21	110.77	105.65	105.00	103.30
1978	101.62	108.51	111.46	105.14	105.72	104.06
1979	101.43	109.53	112.65	106.00	106.25	104.36
1980	100.08	111.97	113.20	112.42	106.31	104.47
1981	98.49	110.41	112.21	109.71	106.36	103.65
1982	100.15	111.28	112.29	111.90	107.34	104.64
1983	97.69	110.57	112.66	109.38	107.68	104.05

Source: The Estimate of State Domestic Product 1960/61 to 1982/83, Central Statistical Organisation.

Note: same as table 5.2(a)

Table 5.2(e): Index of Log Values of certain aggregates, Kerala

	PAGR	SMA	SMAR	SMAV	T	SDP
1960	100.00	10[illegible]	100.00	100.00	100.00	100.00
1961	99.74	100.50	101.09	100.00	100.66	100.12
1962	100.03	101.19	102.50	100.02	100.95	100.44
1963	100.13	101.57	103.16	100.10	101.20	100.61
1964	100.20	102.06	104.18	100.02	101.71	100.98
1965	100.15	102.32	104.72	99.96	102.03	101.07
1966	100.64	103.23	106.31	100.03	102.46	101.52
1967	101.14	105.05	109.32	100.13	102.95	102.08
1968	101.57	104.68	108.64	100.28	103.89	102.50
1969	101.94	105.69	110.19	100.48	104.16	102.88
1970	101.62	107.66	108.45	108.17	105.41	103.43
1971	102.00	108.81	111.16	108.12	105.86	103.90
1972	101.96	109.39	110.93	109.53	106.21	104.11
1973	101.88	109.22	110.46	109.59	106.40	104.07
1974	101.96	108.73	109.95	109.06	106.61	104.16
1975	102.32	109.45	110.31	110.17	107.00	104.54
1976	101.95	110.04	111.99	109.91	107.17	104.44
1977	101.79	110.01	112.94	108.90	107.52	104.56
1978	101.84	110.24	112.90	109.48	107.80	104.75
1979	101.98	111.38	114.29	110.54	108.41	105.13
1980	101.87	112.99	115.94	112.40	109.47	105.71
1981	101.88	113.86	118.02	112.06	110.34	106.17
1982	101.91	114.81	119.21	112.87	111.40	106.69
1983	101.56	115.36	119.59	113.75	112.41	107.08

Source: The Estimates of State Domestic product 1960/61 to 1982/83, Central Statistical organisation

Note: same as table 5.2 (a)

throughout 196Ø-82 and showed declining trends either during 1965-68 or in the second period after 1978, though its growth rate may have been marginally higher during 196Ø-64 and after 1978.

Agriculture shows sharp fluctuations with a 3-4 years periodicity and the first recession was marked by a severe agricultural down turn as also the second one during 1979. Agriculture grew on a trend basis at a very low rate in comparison to either the secondary sector or the tertiary sector.

Besides the above discernible relationship between agriculture and the secondary sector, there may have been a weak relationship - year to year variation in agriculture and year to year variation in manufacturing but which is not clearly discernible in these graphs. More importantly steep down turn in agriculture seem to have preceeded the recessions but the smaller declines in agriculture have had no such effect.

Consider graph 2.2 for Andhra Pradesh. The trend pattern in registered manufacturing is rather similar to that for India in terms of periodisation. There are some minor differences. The period 196Ø-64 does not show the steady pattern of growth that India does. The recession of the sixties was not pronounced and the recovery upto 1973 is at a rather slow rate, the second recession began in 1979 instead of 1978.

Unregistered manufacture (SMAU) shows great fluctuations as also periods of remarkably steady growth which may be deceptive, since the data base for the unregistered manufacturing is known to be weak. Nevertheless the best growth in SMAU took place in 196Ø-65, a recession was discernable till 197Ø, after which there was a steady recovery at a lower rate than the growth

during 196Ø-65. SMAU over the entire period grew much less than SMAR.

The tertiary sector grew steadily at a uniform rate which may have accelerated somewhat after 1978. Short term fluctuations could be related to the ups and downs of the trend in agriculture.

Throughout the period agriculture in Andhra Pradesh grew a bit faster than all India and also showed much variation. The NDP (SDP) followed PAGR more closely reflecting relatively higher weight of agriculture in NDP of Andhra Pradesh.

Consider Graph 2.3 for Karnataka. Here we may be tempted to see a recession during 1963-65. Instead it would be better to say that Karnataka had no pronounced recession in the mid sixties but may have had a deceleration in growth from the high rates of the sixties which went on to bring the growth rates down to a recession in 197Ø-74. But the pronounced recovery of 1975 was at a high rate, so that even when the second recession set in 1978, SMAR was at a high level relative to that in 196Ø-61.

Total manufacturing (SMA) showed a much slower but steadier growth and very broadly followed the same pattern as SMAR. SMAU showed a slow but steadier growth and picked up only during 1976-79, after which SMAU also shows a stagnation.

Agriculture showed less variation than all India, and the dips therein even the pronounced ones (except perhaps the one in 198Ø) was not accompanied by even small dips in either SMAU or in SMAR.

The tertiary sector shows a steady but slower growth relative to manufacturing and was somewhat higher than the trend growth in agriculture.

Tamil Nadu (Graph 2.4) follows a pattern broadly similar to all India in SMAR. The essential difference was that the deceeleration which began in 1965 after leading to a decline in 1965, slowly brought down the growth rate to very low levels during 1973-74. The recovery began in 1976 after which it grew fast upto 1980. The second recession emerged in 1980. If the data in the unregistered sector is to be relied upon, then SMAU grew steadily until 1970 after which there was a pronounced stagnation till 1979, followed by a steep jump after which it behaved erractically.

The teritary sector responded to the sharpest falls in agricultural value added. Agriculture and SMAR grew over the entire period distinctly more slowly than in the case of India.

Consider Graph 2.5 for Kerala. The marked contrast in the pattern with all India is clear. Registered manufacturing (SMAR) accelerated after 1964. During 1965-70 (if we ignore the dip in SMAR and the steep rise in SMAU which we would agree may be purely due to errors in data) SMAR grew fast, perhaps faster than during 1960-64. The pattern is more clearly seen in SMA, wherein the great fluctuations in SMAR in 1969 was accompanied by a counter movement of SMAU. The period 1970-78 was one of near stagnation for both SMAR and SMA. During 1979-83 when India and the other southern states showed a distinct recessi n Kerala shows a recovery from the recession of 1970-78.

The tertiary sector grew much faster in Kerala, than other states both relative to the secondary sector and absolutely. What was even more remarkable was that the tertiary sector showed distinct long term variations in the trend. The tertiary sector grew fastest during 1966-1970 and 1979-82. These

are periods of recession in the India and of high industrial growth in Kerala.

Agricultural growth showed very little change on a trendwise basis throughout the period. The period 1965-69 was the only period of significant agricultural growth and all other periods being either one of stagnation or decline. Overall, Tamil Nadu and Kerala showed the least expansion in agriculture.

In summary, we may state that the distinctiveness of Kerala emerges not so much in the slowness of its industrial growth but in the unrelatedness of the trend pattern of growth to industrial growth in other southern states and at the all India level. Kerala does not show the recession of the mid sixties and the recession of the late seventies and early eighties at the national level. If anything there was an acceleration of growth in these periods in Kerala. And the period of recovery at the all India level during 1970-78 (particularly 1975-78) showed recessionary trends in Kerala. Similarly, the period of growth in the sixties in India and in most of the important large states was one of actual net decline in industrial value added in Kerala. Therefore, we may be tempted to generalise that there is an inverse relationship between growth in the rest of the country and in Kerala over the long period. But at the moment we would rather limit ourselves to say that growth in Kerala has been unrelated to the growth in the rest of the country. . . lack of articulation of the Kerala economy with rest of the national economy becomes a the major facet that needs explanation.

Section 2

Growth Trends in Income and Employment : Factory Sector

Overall Trends

Meanwhile, to confirm some of the above broad conclusions, this section analyses the data for the factory sector from Annual Survey of Indutries (ASI). The growth indicators considered here are employment, output and value added. The analysis will be done in the inter regional context by comparing Kerala with Karnataka, Tamil Nadu and Andhra Pradesh and also with all India. We will study the growth of the major industry groups in Kerala.

From Table (2.3) it is clear that employment in the factory sector as a whole showed a slower growth rate in Kerala as compared to the other southern states between 1961 and 1982. It was also much below the average growth rate for all India. However, in terms of output Kerala recorded a higher growth rate than Andhra Pradesh and was only marginally below Karnataka and Tamil Nadu. Kerala's performance in output growth was alsoa bove the average growth rate for all India. The growth rate in value added in Kerala was below that of the other state, but was slightly higher than the overall growth rate for all India. This could be because of the industry structure in Kerala, which as will be seen elsewhere, is dominated by traditional and agrobased industries characterised by outdated technology.

Within the factory sector the census sector employment grew at the slowest pace (See Table 2.3) as compared to the other states. It was also lower than the average growth for all India. Andhra Pradesh, Tamil Nadu and Karnataka had growth rates much

Table 2.3: Growth rate of employment, output and value added 1961-82 at 1970-71 prices

(percent)

	Employment			Output			Value Added		
	Census[1]	Sample[2]	Factory[3]	Census	Sample	Factory	Census	Sample	Factory
India	3.43	4.46	3.62	6.56	6.35	6.52	5.44	4.30	5.30
Kerala	2.61	3.23	2.71	8.67	4.40	8.21	6.52	3.26	5.88
Andhra Pradesh	5.83	6.58	5.65	8.36	5.22	7.39	8.87	5.93	8.86
Karnataka	4.75	4.97	5.28	8.06	9.00	8.68	6.66	7.27	7.12
Tamil Nadu	4.65	4.68	4.47	8.34	5.55	8.12	6.54	3.66	5.94

Notes: 1. Taken from Annual Survey of Industries (ASI) for Census sector various issues

2. Upto 1970 taken from the Report on the Annual Survey of industries sample sector. Summary Results, NSS
3. The figures for factory sector upto 1970 was obtained by adding the census and the sample sector. After which the figure were taken from the ASI, factory sector various issues.

4. Growth rates are trend compound growth rates.

above the national average. In terms of output, however, Kerala had the highest growth which was also above the average for all India. On the other hand, Karnataka which had the highest growth in employment showed the lowest growth in terms of output and value added. Value added growth in Kerala was slowest among the southern states. It was marginally below Tamil Nadu. But it much above the average for all India. All the southern states showed a growth rate in value added much above the all India level. The above pattern would suggest that growth in the census sector in Kerala was largely in the of capital intensive industries, which lead to high growth in output and value added without showing high growth in employment.

From table 2.3 we see that the growth rate of employment was the lowest in Kerala and it was much below that for all India in the sample sector. The same is true in the case of output and value added in Kerala. This would suggest that the sample sector in Kerala has not be growing at the same pace as in the Southern states and all India.

The overall growth rate in employment and value added has been broken up into sub period according to the plan periods. The results of this exercise for all India and Kerala for the census, sample and factory sector are presented in Table 2.4 and 2.5.

During the first period 1961-65 we see from table 2.4 that the factory sector in Kerala grew at a slower pace than in all India. This is true in the case of census sector also. However, the sample sector showed a much higher growth as compared to all India. In the second period 1966-69, the factory sector in Kerala showed a higher growth rate than all India.

Table 2.4: Annual Growth in Employment

(percent)

	1961-66 third plan	1966-69 annual plan	1969-74 fourth plan	1974-79 fifth plan	1979-82 sixth plan
Factory Sector					
India	5.Ø2	Ø.98	3.72	4.39	2.49
Kerala	3.32	2.81	2.61	2.Ø6	Ø.Ø8
Census Sector					
India	6.34	Ø.49	3.Ø4	4.19	1.84
Kerala	3.57	2.65	3.17	Ø.98	(-)1.66
Sample Sector					
India	(-)1.2Ø	5.48	6.73	5.18	(-)Ø.52
Kerala	3.32	2.81	2.61	2.Ø6	(-)1.18

Notes: Growth rates are log growth rates.

Table 2.5: Annual Growth in value added at 197Ø-71 prices

(percent)

	1961-66 third plan	1966-69 annual plan	1969-74 fourth plan	1974-79 fifth plan	1979-82 sixth plan
Factory Sector					
India	7.89	(-)Ø.78	6.Ø9	9.51	4.97
Kerala	5.2Ø	13.82	Ø.85	9.13	1.66
Census Sector					
India	9.36	(-)Ø.12	5.Ø4	1.44	7.Ø7
Kerala	6.18	16.22	1.Ø9	8.28	2.65
Sample Sector					
India	(-)1.42	2.65	(-)6.8Ø	22.13	(-)4.42
Kerala	(-)Ø.35	4.15	(-)Ø.97	14.81	(-)3.12

Note: Growth rates are log growth rates.

Though there was a fall in the growth rate when compared to period 1 the fall in Kerala was much less than in all India. The same pattern can be seen in the census sector also. The sample sector had lower growth rate than in India. The growth rate in this sector in all India picked up during the second period but in Kerala there was a decline. In third period (1969-74) employment in Kerala grew at slower pace in all three sectors. The growth in all India actually picked up during this period but in Kerala the growth rate did not show much variation except in census sector where it increased from 2.65 to 3.17. In the fourth period (1974-79) the factory sector of all India continued to grow whereas Kerala showed a further decline. The same is true with the census sector also. However in the sample sector both all India and Kerala showed a decline though the growth rate in Kerala was much below that in all India. In the fifth period (1979-82) all India showed a further decline in employment. Kerala also showed a decline in both the census and sample sector. But the decline in Kerala was much steeper.

The figures for value added (see table 2.4) showed that Kerala had growth below the all India level in all the three sectors in the period 1. The sample sector showed a negative growth in both all India and Kerala. In the second period Kerala had a higher growth than in all India in factory sector. This was also see in the census and sample sector. India showed a decline during this period except in the sample which showed positive growth. In the 3rd period the growth in India picked up but Kerala showed a decline in the factory sector. The census as well as the sample sector also showed this pattern. In the fourth period the factory sector both in all India and Kerala showed an

accelerating trend. However the census sector of all India showed a decline whereas the sample sector showed increase. In Kerala growth in both the census and sample sector picked up. During the fifth period there was a decline in the factory sector as a whole both in all India and Kerala. This was largely accounted by the decline in the sample sector, in all India and Kerala. In Kerala census sector also showed a decline.

Growth Trends in Major Industries

In the above discussion we looked at the overall growth in value added and employment in Kerala in comparison with the other southern states and all India. We will no go on to review the growth in employment and value added in major industries in Kerala. This will help us to see whether the overall poor performance of the industries in Kerala is confined to a few industries or a group of industries or whether it is across the board. To get a clearer picture of the growth we have divided the whole period into two sub periods viz. 1962-1971 and 1973-1981. There is no data for 1972 since there was no survey. The rationale for such a periodisation is based on the fact that the annual growth of valueadded in the factory sector in Kerala showed a change in the pattern after 197Ø. Table 2.6 and 2.'' gives the details on the industry wise growth in value added and employment for the whole period and the two sub period for the factory sector as a whole and for the census and sample sectors seperately.

Table 2.6

Growth of value added in Kerala, 1961-1981 (at constant 197Ø-71 prices) in major industry groups

(percent)

Industry Groups	1962-1971			1972-1981			1962-1981		
	Fac	Cen	Sam	Fac	Cen	Sam	Fac	Cen	Sam
Canning preserving of fruits and vegetables	2Ø.Ø9	21.21	14.23	1.87	-2.91	15.54	1Ø.4Ø	8.4Ø	14.9Ø
Canning preserving of fish	5.63	12.95	13.4Ø	-7.75	-21.59	13.48	-1.5Ø	-5.3Ø	Ø.8Ø
Mis.food products	-6Ø.5Ø	-23.96	-145.84	-6.5Ø	-Ø.84	-28.68	-Ø.4Ø	-Ø.9Ø	-8.9Ø
Textiles	8.Ø5	4.73	17.Ø9	3.72	8.Ø9	-15.3Ø	5.8Ø	6.5Ø	-Ø.1Ø
Coir and Wood Products	-Ø.68	2.54	6.39	-7.34	-12.29	Ø.17	-4.2Ø	-7.7Ø	-3.31
Wood and wood 2products	7.55	4.37	1Ø.37	2.7Ø	-Ø.27	-4.78	2.1Ø	1.9Ø	2.4Ø
Furnitures and fixtures	44.55	21.57	49.72	-2Ø.71	Ø.87	-26.38	1Ø.ØØ	1Ø.6Ø	9.4Ø
Printing and Publishing	-8.65	-1Ø.Ø1	-198.97	-2.52	6.29	-17.11	-7.ØØ	-8.4Ø	-2.8Ø
Rubber and Rubber Products	4.63	-1.36	11.4Ø	-Ø.52	6.37	-1Ø.27	1.9Ø	2.7Ø	-Ø.1Ø
Chemicals and chemical products	14.3Ø	17.49	-1.34	6.53	7.11	-3.43	1Ø.2Ø	12.ØØ	-2.4Ø
Non-metallic mineral products	Ø.81	-Ø.54	4.64	1.91	1.19	3.42	1.4Ø	Ø.[illegible]3	4.ØØ
Basic metals and alloys	Ø.76	-2.11	32.88	7.61	9.82	-9.55	4.4Ø	4.2Ø	1Ø.4Ø
Metals and Metal Products	9.8Ø	-18.ØØ	11.45	2.84	24.99	1.45	6.1Ø	4.8Ø	6.2Ø
Electrical machinery	32.26	31.38	4Ø.27	8.93	1Ø.Ø3	-3.45	1.99	2Ø.1Ø	17.1Ø
Transport equipment	24.75	22.13	5.96	25.34	26.Ø6	5.19	2.51	24.2Ø	5.6Ø

Table 2.7:Growth of employment in Kerala, 1962-1981
(percent)

	1962-1971			1972-1981			1962-1981		
Industry Group	Fac	Cen	Sam	Fac	Cen	Sam	Fac	Cen	Sam
Canning Preserving of fruits and vegetables	11.34	12.18	6.13	1.29	-3.31	15.88	6.ØØ	4.ØØ	11.3Ø
Canning preserving of fish	22.Ø2	26.71	11.88	-4.32	-1Ø.33	6.6Ø	8.1Ø	7.1Ø	9.1Ø
Miscellaneous food products	-1Ø.84	-16.72	18.67	2.36	23.62	Ø.98	2.3Ø	2.3Ø	-3.7Ø
Textiles	2.39	3.2Ø	Ø.1Ø	2.4Ø	1.52	-5.2Ø	1.3Ø	2.3Ø	-2.7Ø
Coir and Coir Products	-5.73	-11.71	2.9Ø	-7.38	-6.82	-7.85	-6.6Ø	-9.1Ø	-2.8Ø
Wood and Wood Products	Ø.41	1.73	-1.ØØ	1.79	-5.13	6.7Ø	1.1Ø	-1.9Ø	3.1Ø
Furnitures and Fixtures	19.78	1Ø.24	29.43	-13.17	-5.78	-19.7Ø	2.3Ø	1.8Ø	3.4Ø
Printing and Publishing	-31.79	-13.Ø8	-58.92	-Ø.55	2.83	-6.43	-2.4Ø	-4.2Ø	Ø.6Ø
Rubber and Rubber Products	7.3Ø	31.12	7.ØØ	4.39	3.57	4.41	5.8Ø	16.5Ø	5.6Ø
Chemicals and chemical products	11.66	11.Ø4	13.32	1.83	4.26	-8.17	6.5Ø	7.4Ø	1.9Ø
Non-metallic mineral products	-1.97	-1.85	-2.39	Ø.1Ø	-3.47	7.18	-Ø.9Ø	-2.7Ø	2.7Ø
Basic metals and alloys	-4.7Ø	-9.71	23.15	4.37	6.87	-2.41	Ø.1Ø	-Ø.3Ø	9.6Ø
Metals and metal products	5.48	3.73	6.12	-1.2Ø	7.33	-6.5Ø	1.9Ø	5.6Ø	Ø.6Ø
Electrical Machinery	19.71	21.2Ø	15.Ø6	4.Ø1	5.47	-5.27	1.14	12.9Ø	4.3Ø
Transport Equipment	17.15	19.18	3.56	4.39	4.51	2.75	1Ø.4Ø	11.4Ø	3.1Ø

The Factory Sector

From Table 2.6 we observe that for the factory sector as a whole only 3 industries -2Ø9 (misc. food products) 285 (printing and publishing)_ and 268 (coir products) out of 15 showed negative growth in value added in the first period. These industries also showed negative growth in the second period. In the second period the number of industries that showed negative growth increased to six. Except for non metallic mineral products (32Ø) and transport equipment (37Ø) all other industry groups showed a decline or negative growth in value added in the second period. However only 4 industries showed negative growth for the whole period. The high positive growth in period 1 more than compensated for the negative growth in period 2, thus making the growth for the overall period positive in a number of industries.

The figures for employment (See Table 2.7) reveals that industries 2Ø9 (misc. food products), 268 (coir), 285 (printing and publishing), 32Ø (non metallic mineral products) and 33Ø (Basic metals and alloys) had negative growth in the first period. Of these 268 and 285 showed negative growth in the 2nd period also. Apart from these industries canning and preserving of fish (2Ø3), furnitures and fixutres (276) and metals and metals products (34Ø) also showed negative growth in the 2nd period. The only industries that showed higher growth in the 2nd period where 23Ø (textiles) 27Ø (wood products) 32Ø (non metallic mineral products) and 33Ø (Basic metals and alloys). However for industry 32Ø the negative growth in the first period was much higher than the positive growth in the 2nd period and therefore the overall growth was negative. Industry 268 (coir) and 285 (printing and publishing) also showed negative growth for the

overall period. It is quite clear from the above analysis that the factory sector in Kerala experienced a slower growth in value added and employment in the 2nd period (seventies) and this slower growth was see in almost all the industry groups.

The Census Sector

We observe from table 2.6 that as 7 industries out of 15 misc. food products (209), printing and publishing (285) Rubber (300) non metallic mineral products (320) basic metals and alloys (330) metal products (340) and coir and coir products (268) showed negative growth in value added during the first period (1962-1971). We also observe that apart from industry 268 (coir) and 209 (misc. Food products) three industries 202 (canning and preserving of fruits and vegetables) 203, (canning and preserving of fish) and wood and wood products (270) also showed negative growth in the second period. Though industry 276 (furnitures and fixtures) 310 (chemicals) and 360 (Electrical machinery) showed positive growth in both the period the growth rate declined in the second period. As many as 12 industries in the census sector showed a decline in growth or negative growth in the second period. From the above analysis we find that there has been a decline in the growth of value added since the seventies and this decline has been across the board.

However, for the whole period only 4 industries 203 (canning and preserving of fish) 209 (mis food products) 268 (coir products) and 285 (printing and publishing) had negative growth. Industry 203 had high (12.95%) positive growth in period 1 but it showed a decline in period 2 which resulted in a overall decline in the industry during the whole period. In fact

transport equipment (37Ø) electrical machinery (36Ø) chemicals (31Ø) furnitures and fixtures (276) and canning and preserving and fruits and vegetables (2Ø2) had high growth rates of more than 8%. This was mainly, due to the high growth in value added in these industries during the first period.

Looking at the employment figures given in table 2.7 we find that all industries which showed negative growth in value added in the first period showed negative growth in employment also, the exception being rubber products (3ØØ) and metal products (34Ø) A similar picture is seen in the second period also, the exception being misc. food products (2Ø9) which showed a positive growth of 23.62 percent in employment. Further, industry 276 (furniture and fixtures) which had positive growth in value added showed a negative growth in employment in the 2nd period. 14 out 15 industry groups showed decline or negative growth in employment in period 2.

The growth in employment for the whole period showed negative growth only in industry 268 (coir), 27Ø (wood products) 285 (printing and publishing) 32Ø(non-metallic minerals) and 33Ø (Basic metals and alloys). The positive growth for the whole period is again due to high positive growth during the first period.

From the analysis it is quite clear that the census sector in Kerala showed a slowing down in growth both in terms of value added and employment and the phenomena is not restricted to a few industry group but across the board.

The Sample sector

In the sample sector only 4 out 15 industry groups - 2Ø3 (canning and preserving of fish), 2Ø9 (mis food products) 285 (printing and publishing) and 31Ø (chemicals) showed negative growth in value added in the first period. Among these 4 industries only industry 2Ø3 showed a positive growth during the 2nd period. In the 2nd period as many as 9 out 15 industries showed negative growth. Except for 2Ø3 (canning and preserving fish) and 2Ø2 (canning and preserving of fruits and vegetables) which maintained its growth rate all others showed a decline in the growth rates in period 2. The positive growth in period 1 was quite high which resulted in an overall positive .growth in value added in 1Ø out of 15 industries during the whole period.

From Table 2.7 for employment we find that during period 1 wood and wood product (27Ø), printing and publishing (285) and non metallic mineral products (32Ø) showed negative growth in employment. Only industry 285(printing and publishing) showed negative growth in value added also. In the 2nd period non metallic mineral products (32Ø) showed positive growth and industry 2Ø2 (canning and preserving of fruits and vegetables) showed higher growth as compared to the 1st period. The decline in employment was across the board.

The figures for the whole period show that only five industries had negative growth in employment. The growth in employment during period 1 was high and this compensated for the decline in growth in period 2 and therefore a number of industries showed positive growth for the whole period.

Table 2.8

Summary of growth trends between 1961 to 1981 in value added and employment in industries in Kerala

(industry code)

	Consistent decline		Consistent growth	
	Value added	Employment	Value added	Employment
Factory sector	202 203 209 230 268 270 276 300 310 340 360	202 203 268 276 300 310 340 360 370	285 320 330 370	209 230 270 285 320 330
Large sector	202 203 268 270 276 310 360	202 203 270 276 300 310 320 360	209 230 285 300 320 330	209 268 285 330 340
Sample sector	230 268 270 276 300 310 320 330 340 370	203 209 230 276 268 300 310 330 340 360 370	202 203 209 285	202 270 285 320

The above analysis of the census and the sample sector clearly shows that there is a slowing down in the growth of value added and employment in a large number of industries during the seventies as compared to the sixties.

Table 2.8 above summarises the trends in value added and employment in the major industry groups in Kerala. It is quite evident from the table that a large number of industries showed decline in value added and employmet in the factroy sector as a whole and also in the census and sample sectors taken seperately.

From this brief review of the movements of economic aggregates in Kerala in comparison to that of the other southern states and all India we would like to call attention to the following findings :

Kerala's growth trends reveals a lack of connection with the pattern for India unlike in the case of the other southern states. This finding raises sharply the question of the factors that underline growth and performance of industries in kerala. They are expected to be different from that of all India.

Growth has not been as rapid as in Karnataka or in Andhra Pradesh, and in other states in the southern region which started with low level of per capita manufacturing comparable to that for Kerala in the sixties.

If we take for inter regional comparison 195Ø as the point of reference, then Kerala was better industrialised than all India and southern states except Tamil Nadu. If the point of comparison is 196Ø, then its level of industrialisation was comparable to that of all India, below that of Karnataka and Tamil Nadu and above that of Andhra Pradesh. Yet, its growth pattern hardly followed either that of the fast growing states Karnataka and Andhra Pradesh or the more static state Tamil Nadu, or the average performance of all India. Kerala's growth is therefore unexpected and exceptional, contrasting with the phenomenon of high growth for lowly industrialised state and moderate to low growth in the highly

industrialisation states in the post independence period.

An disaggregated (industrywise) analysis of the growth of value added and employment in Kerala shows that there has been a decline in growth rate since the seventies in majority of the industries in terms of both value added and employment. This pattern is true for both the census and the sample sector.

Notes and References

1. Figures for 1950 are taken from P.K.Micheal Tharakan and Thomas Issac (1985). The figures are for Travancore which is a part of present Kerala.

2. see for instance P.K.Micheal Tharakan and Thomas Issac (1985)

Chapter III

TRENDS IN PRODUCTIVITY GROWTH

Introduction

In the previous chapter we had analysed the growth trends in the manufacturing sector in Kerala in terms of value added and employment using the data from the ASI. We found that there was slowing down in the growth of value added and employment in Kerala since the seventies. The poor performance of Kerala's manufacturing sector can also be due to its poor productivity. In this Chapter we will supplement our earlier findings by studying the trends in productivity.

Productivity is defined as a measure of efficiency of transforming inputs into output. It is infact the ratio of output to input reflecting efficiency in factor use. The ratio of output to particular inputs are termed as partial productivity whereas the ratio of output to weighted sum of all the inputs used in the production process is defined as Total Factory productivity (TFP). Two version of TFP are used one is TFP as a stock concept and the other is TFP growth which is a flow concept. The former explains the level of productivity at a point in time whereas the latter measures the change overtime. In our study we will look into the partial productivity growth as well as the total factor productivity growth in the manufacturing sector in Kerala. The period of study is 1961-1982.

This chapter is divided into four sections. In the first section we will discuss the data sources and variables used in this chpater. In next section we will study the partial productivities and capital intensity in manufcturing sector in

Kerala. In the section III we look at the total factor productivity growth in the manufacturing sector in Kerala and in the fourth section we look at the relative contribution oflabour, capital and total factor productivity to output growth.

Section 1

Data and Variables

The major source of data for this chapter is Annual Survey of Industries (ASI) the details of which are discussed in Appendix 1.

Measure of Output

Gross value added is taken as the measure of output in our study. This is obtained by adding depreciation and value added reported in ASI. The series obtained has been deflated using wholesale price index for manufacturing with 1970-71 as the base year. (see appendix I for details)

Measure of Labour inputs

There are three alternatives measures available in the ASI: man hours, workers and employees. In our study w will use employees' as the measure of labour input. This includes workers as well as supervisors, technicians, managers, clerks and other similar types of employees. We have made no attempt to correct the data for the quality changes arising from age, sex, educational and occupational composition of the labour force.

Measurement of capital input

In our study we have taken value of gross fixed capital stock at constant prices as the measure of capital input. This measure includes land but does not include working capital. This requires the estimation of capital stock for the bench-mark year and the estimation of investment in subsequent years at the price level of the bench mark year. To estimate the base year capital stock we have taken the average of gross net ratio for five different time points,1961,1965,197Ø ,1974 and 1982, computed from the combined balance sheets of large and medium companies published by the Reserve Bank of India (RBI). The calculated gross net ratio has been multiplied by the base year net fixed assets at purchase prices in order to arrive at the base year gross capital stock at base year prices (for details see D.U. Sastry (1982) and Hashim and Dadi (1973). The gross investment is being deflated by using price index of capital good which has been formed by taking a weighted averge of 'construction and machinery' price indices. The deflated gross investment for the current year is then added to base year capital stock, the capital stock for the t period (current) has been generated by following perpetual Inventory Method (PIM) (see Golda~ 1985).

Section II

Trends in Partial Productivity

We will now turn to the estimates of partial productivity and capital intensity in the factory sector as a whole and also for the Census and sample sector seperately. We have divided the entire period (1961-1982) into two sub period, 1961-1971 and

1971-1982. The partial productivity measures, we have used, are capital productivity and labour productivity. Capital productivity is measured as a ratio of gross value added to gross fixed capital and labour productivity is measured as the ratio of gross value added to employees. Capital intensity is measured as a ratio of gross fixed capital to employees. The estimates for the factory sector are given in Table 4.1. During the entire period 1961-1982 capital productivity showed negative growth whereas labour productivity and capital intensity showed positive growth.

Table 4.1: Partial Productivity Growth in the factory sector in Kerala at constant (1970-71) prices 1961-82
(percent)

Year	Capital productivity	Labour productivity	Capital intensity
1961-1971	-6.406	5.135	11.541
1971-1982	-4.968	1.468	6.437
1961-1982	-4.617	3.905	8.522

Note: growth rates are average of annual growth rates.

This suggest that there was capital deepening in Kerala factory sector and this has resulted in a growth in labour productivity The estimates for the sub periods shows a negative growth in capital productivity in both the periods. Labour productivity and capital intensity showed a decline in the second period as compared to the first period.

Table 4.2 gives the estimates of partial productivity and capital intensity in the census and sample sector seperately. During the entire period capital productivity showed a negative growth in the census sector as well as the sample sector. The rate of decline in the census sector was much larger than in the sample sector. Labour productivity and Capital intensity showed positive growth rate in both the sectors. The growth of the census sector was higher than that in the sample sector. The estimates for the sub periods showed marked inter temporal variations. Capital productivity showed negative growth in both the periods.The average annual growth rate in labour productivity in the census

Table 4.2:
Partial Productivity Growth in the Census and Sample Sectors in Kerala at Constant (197Ø-71) prices 196Ø-82

(percent)

	Capital Productivity		Labour Productivity		Capital-Intensity	
	Large	Small	Large	Small	Large	Small
1961-1971	-4.7Ø4	-5.878	6.ØØ9	-2.Ø66	1Ø.713	3.811
1971-1982	-3.318	-9.482	3.Ø5Ø	-6.173	6.368	3.3Ø8
1961-1982	-3.729	-2.876	4.389	Ø.187	8.118	3.Ø62

Note: Growth rates are average of annual growth rates.

sector showed a decline in the second period. This was also true in the case of capital intensity. In the sample sector labour productivity showed positive growth in the first period and negative growth in the second period. The capital intensity showed a decline in the second period in the sample sector.

We find in Kerala a declining trend since 1971 in capital intensity in the factory sector and also in the census and sample

sector taken seperately. This is also accompanied by fall in the labour productivity after 1971 in both the sectors and also in the capital productivity. In Kerala the rate of growth of capital intensity is much above the rate of labour productivity and there is an associated steep decline in capital productivity in the factory sector. A similar pattern is seen in both the census and sample sectors. This would suggest that increases in labour productivity was achieved through capital deepening and increasing application of capital was not accompanied by technological progress which would have prevented capital productivity from declining.

Section III

Trends in Total Factor Productivity

In the previous section we had seen the partial productivity growth in the manufacturing sector of the ASI in Kerala. However, partial productivity has the limitation that it does not measure the overall productivity efficiency due to influence of substitution effect which gets cancelled out in the estimates of TFP. Hence TFP is widely used to measure overall efficiency. TFPG which measures the change in productivity overtime is most commonly used in emphirical analysis. Various TFP indices are used and they differ from one another with regard to the weighting system used. The most commonly used index are Kendrick index[1] and Solow index[2] and in recent times translog index is also widely used. In our analysis we have used solow index to measure total factor productivity. The Solow index to measure total factor productivity is given by the following equation

$$\frac{\dot{A}}{A} = \frac{\dot{Y}}{Y} - \left[(1-\beta)\frac{\dot{L}}{L} + \beta\frac{\dot{K}}{K}\right]$$

where Y denotes output, L labour, K capital and β the income share of capital. Dot stands for the time derivative.

TFG estimates for the factory sector of ASI in Kerala is given in Table 4.3. The table also gives the estimates for census and the sample sector. The average annual growth rate of the index

Table 4.3: Annual average growth in Kerala (TFPG)
1961-1982 (at constant 197Ø-71 prices)
(percent)

Year	Solow Measure		
	Factory	Census	Sample
1961-1971	-1.821	-Ø.194	-4.51Ø
1971-1982	-2.2Ø3	-Ø.531	-7.898
1961-1982	-1.113	-Ø.238	-1.611

for the period 1961-1982 in the factory sector was negative. The decline in the growth rate was sharper in the sample sector as compared to the census sector. In the period 1961-1971 the factory sector showed an average annual rate of decline of 1.82. The decline in the small sector during this period was again more than that it the large sector.

The period 1971-1982 showed similar pattern. This period showed an average annual rate of decline which was higher than

was no significant gains in TFPG during the period 1960-1982. In fact the second period showed a worsening in the growth rate. There has been a definite fall in the TFPG between the two period and the seventies show a declining trend in TFPG. This is true if we look at the factory sector as a whole or at the census and sample sector seperately. This would suggest that overall efficiency has not increased, rather it has decreased.

The same pattern was seen in the growth in value added and employment in these sectors (see chapter 2). There seems to be a significant positive relationship between output growth and productivity growth.

Section IV

Contribution of Factors to Value added Growth

In this section we will draw attention to the relative contributions of labour, capital and TFP to value added growth in the factory sector and in the sub sectors. The decomposition of value added in the factory sector into the various sources for the period 1961-1982 and sub periods (1961-71 and 1971-82) is given in table 4.4.

Table 4.4. Decomposition of value added growth in factory sector

(percent)

Period	contribution of labour	contribution of capital	contribution of TFP
1961-1971	17.20	109.43	-26.64
1971-1982	12.33	92.12	- 4.45
1961-1982	15.22	101.66	-16.88

In the factory sector we find that the contribution of capital was the highest (1Ø1.66) during 1961-1982. The contribution of TFP was negative during the period. In the factory sector in first period the contribution of capital was very high.
TFP showed negative contribution to growth in value added. In the second period however the contribution of both capital and labour declined. Though TFP showed negative contribution in the second period also there was slight improvement in its share.

Table 4.5 gives the contribution of labour, capital and TFP to growth in value added in the large and small factories for the whole period (1962-1981) and also in the sub period.

Table 4.5: Decomposition of Value added Growth in Census and and Sample sector

(percent)

Period	Contribution of labour		Contribution of capital		Contribution of TFPG	
	Census	Sample	Census	Sample	Census	Sample
1961-1971	13.65	-4Ø.18	91.65	-2Ø6.52	-5.3Ø	346.17
1971-1932	7.57	23.38	92.64	52.38	-Ø.21	24.24
1961-1982	11.27	37.41	91.98	18.41	-3.18	44.18

We observe that in the large sector the contribution of TFP was negative during the period 1961-1982. In the same period capital contribution was the highest. The results of the decomposition for the two sub period for the census sector showed that the contriburtion of capital was the highest during the period 1971-1982. For the same the period, the contribution of TFPG was negative. In the second period the relative contribution of capital showed an increase whereas that of labour declined. Though TFPG showed negative contribution in both the periods

there was a slight improvement from -5.3Ø to -Ø.21 in the second period.

The findings for the sample sector for the period 1961-1981 reveals a different pattern. The contribution of capital was higher than that of labour. TFPG showed negative contribution to growth in value added. The results for the sub period show that there was an increase in the contribution of labour and capital in the second period. Contribution of TFPG though positive showed a decline in period 2.

The pattern in factory sector as a whole seemed to be following the census sector. This brings out the fact that the manufacturing sector in Kerala experienced a sluggish growth in TFP in the period 1961-82 and there was a decline in the contribution of TFPG during the seventies.

Conclusions

From the above analysis we would like to draw attention to the following findings:

The partial productivity ratios showed that there was an increase in labour productivity and capital intensity, but capital productivity showed a decline. This suggest that the increase in labour productivity was a result of capital deepening.

The TFPG was negative in the factory sector for the period 1961-82. The seventies saw a declining trend in TFP A similar pattern was seen in the census and sample sector suggesting that there were no gains in productivity in Kerala.

The contribution of capital in the factory sector was the highest during the period 1961-82. The contribution of TFP was

negative. The contribution of capital also showed an increase between1971-82 as compared to 1961-1971. The census sector also followed a similar pattern.

The analysis on the trends in productivity growth in Kerala shows that Kerala sidnot experience any gains in productivity. The situation in fact worsened in the seventies. The poor performance in terms of productivity is in consensus with our earlier findings of poor performance interms of growth in value added and employment. In seeking an explanation for the poor performance of the manufacturing sector in Kerla, a detailed study of the structure of industry in terms of composition of industry as well as organiasation is called for. This we will attempt in the next chapter.

Chapter IV

ORGANISATIONAL STRUCTURE

Introduction

From the discussion in the earlier chapters we found that Kerala's performance in terms of growth in value added and employment and productivity was poor when compared to the other southern states and all-India. We had also stated that the difference in the performance could be explainable in terms of difference in structure particularly organisation structure. Therefore we find it needful to study the structure especially the organisation structure in Kerala in comparison to the other southern states and all-India. This chapter will focus on the organisational structure in the manufacturing sector in Kerala in comparison with other southern states and all-India. The attention will be on three basic organisational groups of manufacturing sector viz (1) household units,(2) factory units and (3) non factory units and to arrive at some estimates of their relative importance. The divergence of Kerala's growth pattern from that of other southern state all-India will therefore be explained in terms of the difference inthe organisation. This chapter is divided into four sections. In section I, we will review the sources of data, and their major limitation. We also outline the adjustments carried out with a view to overcome these limitations. In section II,III,and IV we will, analyse the data and draw some inferences on the organisational structure of the manufacturing sector in Kerala.

Section I

Data base and Limitation

As we have argued earlier it is not adequate to look at the industrial structure in terms of output share of different industries alone but it is necessary to see sizewise structure of industries in Kerala vis-a-vis other southern states and all-India. Much of the literature[1] on sizewise structure have found it useful to have the following broad categories:(1) Household\ artisan/own account enterprise, (2) the so called "middle" or "small" sector which consists of small factories which employ 10-50 workers with the use of power and 20-100 workers without the use of power and non household non factory which employ less than 20 workers and (3) large sector which employs more than 50 workers with the use of power and more than 100 workers without the use of power.

Data pertaining to manufacturing sector in Kerala and states can be obtained from various sources which use different concepts and having different coverages. These sources may not be totally compatible. Nevertheless, it is important to put together this data to build up a picture of the industrial structure in its size or scalar dimensions. This section discusses the various data sources, adjustment needs and their limitations for capturing the changing scalar structure in Kerala.

As far as the factory sector is concerned, we have the Annual survey of industries (ASI) which gives us information on all registered factories census and sample, statewise, industrywise at 3 digit level of disaggregation. Details

regarding the ASI and its limitation have been discussed in appendix I. For planning and national accounting purposes the Government has conducted occassional surveys on the non factory and household sectors. The most detailed of them are the surveys on the so called Directory Manufacturing Establishment (hereafter DME) and the 33rd round of the NSS which survey the Non Directory Manufacturing Establishment (hereafter NDME) and Own Account Enterprises (hereafter OAE). Conceptually, the (DME, NDME and OAE) these cover all the non factory manufacturing and household units. We have put together the detailed survey in 1978-79 on the DME, NDME and OAE along with the ASI so that it will givr a total picture of the manufacturing sector. Hence we are able to get a complete picture at least for one year.

DME includes all units which are not registered under the Factories Act and which employ between 6-20 workers and/or an annual turnover of Rs. 1 lakh. DME units can be household as well non household. The detailed tables of the DME survey are yet to be published and the only volume brought out so far based on the 'Central sample' alone gives us information on statewise and industrywise distribution of DME units at 2 digit level of disaggregation for the states and at the 3 digit of disaggregation for all-India. For all-India the breakup into household and non-household is available whereas for the states it is not. The NDME + OAE units consists of all units which employ less than 6 workers or/and a turnover of less than Rs. 1 lakhs. In otherwords, the NDME and the OAE together conceptually cover all enterprises other than the factory units and those already covered under the DME. OAE enterprise for the purpose of this survey is an undertaking engaged in manufacturing activity

or repairing services with the help of household labour alone. ie. without any hired workers. NDME is defined as an enterprise engaged in manufacturing activity or repair service which is carried out with the assistance of atleast one paid worker on a fairly regular bases. This report gives us information on employment, wages, fixed capital, output and value added per enterprise for India and the States at 3 digit level of disaggregation. The industrywise data is given for the NDME and OAE units together and not seperately for each.

Census of India 1961 and 1981 give us details on the industry wise employment in household(HH) and non household(NHH) industries for the states. Household units according to the censuses are those which are conducted by members of a household with minimum participation by hired labour and the activity should relate to some production, processing, servicing or repairing. In rural areas HH industry must be within the village and in urban areas it must be carried out in the precincts of the house in which the HH lives. In other words, the location and status of the premises within which the activity is carried out has an important bearing upon the categorisation of the unit into household and other. This makes the household manufacturing employment of census 1981 not strictly comparable to the OAE of the 33rd round of the NSS, when OAE are defined without reference to the premises of the units. But to the extent that both use largely household labour there is a great degree of overlap between the household manufacturing employment of the 1981 census and the employment in the OAE units (1978-79). The rest of the units are defined as the non-household units.

From the figures obtained from the census 1961 and 1981,

the figures for 1978-79 may be estimated based on the assumption of a uniform compound growth rate between the two points in time. Value added figures can be obtained from the SDP/NAS for the registered and unregistered sectors. Combining these with the data for the ASI, DME, NDME and OAE sectors a picture of the structure in terms of employment and value added for 1978-79 can be built, which within it cross checks these estimates as we shall argue below. An important point is that the census gives employment at two points in time and hence changes in pattern can also be studied.

All data from the sources such as ASI, NSS, DME are based on the enterprise concept of the manufacturing activity. In other words a census list of enterprises is obtained, a sample of the enterprises is drawn and survey conducted on the bases of which the structural performance ratios of the industry as well as the extent and size of the industries inter alia in terms of value added and employment are obtained. That is the enterprise is the basic unit of enumeration. The major problem is the enterprise in trying to avoid the factories act would distort the figures for employment. Bunching of units in small factories as well as just below the cut off for factories results[2]. The Census in approaching the problem from an altogether different angle namely through the enumeration of individuals in a household is able to capture a truer picture of employment in industries, providing an independent cross-check of the estimates from the NSS etc.

Of course, the census given nothing else but employment. The difficulties in intercensal compariability on account of change in definition of workers is well known. This is particularly serious with 1971 census. Even after attempts at

adjustment the workforce figures are underestimates and cannot be compared with 1961 on with the 1981 census. The 1981 concepts are similar to 1961 and with some adjustments can be used with 1961 census.

The census inter alia gives the total number of persons in manufacturing (ie., division 2 & 3 of the industrial classification). However, 1981 census adopts the concept of main and marginal workers. Marginal workers are those who have worked for anytime in the year preceeding the enumeration but not for major part of (185 days) of the year. Whereas, the proportion of marginal workers is low for male (less than 2%) it is as high as 29% for females the overall average is 9%[3] in 1981 Census report. An exculusion of these workers would effect the compariability with 1961.

Detailed information on main workers - Rural/Urban, Male/Female, Household/Non-household breakup at 3 digit industrial disaggregation is available. However, for the marginal workers only the breakup into Rural/Urban and Male/Female is available at 2 digit level of disaggregation. The breakup into household/non-household for each industry group is not available and therefore need to be estimated. For this purpose, we have taken the proportion of main workers in household/nonhousehold sectors in each industry group and applied the same to the total marginal workers in the same industry group and obtained the marginal workers in household and non household
units in each industry group. These estimates were then added to the figures for the main workers to obtain the total workers in household and non household units in 1981.

There is also a problem of comparibility arising from the

change in the industrial classification used in 1961 and 1981. Census 1961 used the Standard Industrial Classification (SIC) whereas the census 1981 used National Industrial Classification 197Ø (NIC 7Ø). There is also a difference in the classification used in ASI and census in 1961. The ASI 1961 used the ASI classification in the census sector and the Labour Bureau classification in the sample sector. However, in 1981 ASI also used the NIC 197Ø. In our study a number of industry groups had to be aggregated reducing the 2Ø or so industries at the 2 digit to make the 1961 and 1981 grouping tally[4].

In the following sections we will put together the census of India, ASI, and the DME, NDME and OAE surveys in a consistent way to give us as true a picture as possible of size classwise structure of industries in India, Kerala and southern states. In Section II we will bring out the basic structure of manufacturing sector in a comparative framework with India and southern states. Here we will try to see whether the basic structure in Kerala is different from and southern states and all-India. Next, we will in section III we will do a detailed analysis of the industrial structure in Kerala as compared to all-India. In Section IV, we will try to measure the contribution of the differential structure to the divergence of the Kerala's growth from India's growth through a decomposition exercise.

Section II

A Comparative Study of Basic Structure of Manufacturing

Having given a detail picture of the data sources and their limitations we will go on to the analysis of the data. Table 4.1 brings out the basic structure of manufacturing in Kerala other southern states and all- India in terms of employment. We attempt to bring out a few elements of differences between the structure in Kerala as compared to all-India and southern states. We will use the value added figures given in Table 4.2 wherever necessary to confirm the pattern as observed from the employment.

We observe from Table 4.1 that the role of the ASI census sector in Kerala is about the same level for the southern states and marginally below that for all-India in 1978-79. However, the proportion of employment in the household sector was only 28.37% in Kerala as against more than 35% for India and other states. The structure in terms of value added more or less follows a similar pattern (see table 4.2). In terms of Dennis Anderson's phases of changing industrial structure with economic growth we expect to find an inverse relationship of the percentage of employment in household industry with economic development measured either in terms of the percapita manufacturing or proportion of employment outside the agriculture. In terms of the former measure of development Kerala does not show the expected relationship (see Table 4.3) but is consistent with Dennis Anderson's expectations when the measure is proportion of employment/value added outside agriculture.[5] The large services sector in Kerala as we shall see later ensures this.

Table 4.1

Organisation Structure of the Manufacturing Sector of all-India, and Southern States in terms of employment, 1978-79.

('ØØØ nos)

	India	Andhra Pradesh	Karnataka	Kerala	TamilNadu
1.Household units	8915 (35.27)	1234 (52.42)	611 (37.88)	35Ø (28.Ø4)	1Ø32 (36.17)
2. Non-households	16364 (64.73)	112Ø (47.58)	1ØØ2 (62.12)	898 (71.96)	1821 (63.83)
(a) ASI Census Sector	5367 (21.23)	415 (17.63)	255 (15.81)	228 (18.27)	5Ø3 (17.63)
(b) ASI Sample Sector	1598 (6.32)	234 (9.94)	85 (5.27)	18 (9.46)	211 (7.4Ø)
(c) Non Household Non Factory Sector (NHNF)	9399 (37.18)	471 (2Ø.Ø1)	662 (41.Ø4)	552 (44.23)	11Ø7 (38.8Ø)
3. Total Manufacturing	25279 (1ØØ.ØØ)	2354 (1ØØ.ØØ)	1613 (1ØØ.ØØ)	1248 (1ØØ.ØØ)	2853 (1ØØ.ØØ)

Notes:

1. HH was obtained by subtracting from the total of the NHH units

2. NHH units taken from census 1961, 1981 and estimated for 1978-79

2(a) Taken from Census sector volume I for 1979-8Ø

2(b) Obtained by subtracting from ASIF the ASIC for 1979-8Ø

2(c) NHNF 2(c) + 2 - 2(a) - 2(b)

3. Taken from census 1961, 1981 and estimated for 1978-79.

4. Figures in brackets are percentage shares to totals.

Table 4.2

Structure of the Manufacturing Sector in terms of valueadded, 1978-79.

('ØØØ nos)

	India	Andhra Pradesh	Karnataka	Kerala	TamilNadu
1.ASI Census Sector	83ØØ97	38746	4Ø813	21547	8ØØ57
	(61.39)	(52.35)	(44.Ø1)	(48.69)	(61.86)
2.ASI Sample sector	128ıØ2	73ØØ	757Ø	4765	15125
	(9.47)	(9.86)	(8.16)	(1Ø.77)	(11.69)
3.ASI Factory Sector (1)+(2)	958199	46Ø46	48383	26312	95182
	(7Ø.86)	(62.22)	(52.17)	(59.45)	(73.55)
4. Non Factory Sector (4)-(1)-(2)	394ØØ1	2793ó	44361	17945	34222
	(29.14)	(37.79)	(47.83)	(4Ø.54)	(26.45)
5. All Secondary	1352ØØ	74ØıØ	92744	44257	129ØÓ4
	(1ØØ.ØØ)	(1ØØ.ØØ)	(1ØØ.ØØ)	(1ØØ.ØØ)	(1ØØ.ØØ)

Notes:

1. Non factory units includes HH units + Non-factory non Household units

2. ASI taken from ASI census volume I for 1979-8Ø

3. ASIS obtained from subtracting ASI factory sector from ASI census for 1979-8Ø.

4. Non factory sector is taken as the residual units

5. All secondary taken from NAS as and SDP

6. Figures in brackets are percentage share to totals.

Table 4.3 gives the per capita manufacturing value added in 1961 and 1981 in Kerala India and states along with the employment in various organisational categories. In the Dennis Anderson framework there is a expected inverse relationship between the proportion of employment in the household sector and per capita manufacturing value added. Kerala structurally showed a more advanced economy in terms of employment in the household sector (see that household accounts for a smaller porportion of the employment) If we rank the states in terms proportion of employment in the household sector and in terms of per capita manufacturing value added we find that Kerala has the lowest rank in terms of proportion of employment and ranks second in terms of per capita manufacturing value added. This suggest that Kerala's per capita manufacturing value added is not in keeping with the proportion of employment in the household. Moreover, transformation overtime also stuck to this pattern. This maybe because the pattern of development of Kerala is such that its growth of percapita income is not necessarily tied to manufacturing valueadded. We will address ourselves to this anomoly and argue that it does not remain as such when we are able to show that the true national income of Kerala is higher[6]. At this juncture what is relevant is that in Kerala the fact of high per capita income, low manufacturing value added, suggest that the continued decline of the household sector since 1961 has been income lead rather than being brought about by production expansion in the manufacturing sector.

Another side of this same fact is that the non census sector consisting of units other than ASI census factories and household has a higher share even higher than in Tamil Nadu, the

other states again showed the excepted pattern of positive relationship between per capita manufacturing val" added and the proportion of employment in the small sector, if we interpret the non census, as the small sector. Kerala again showed a very advanced well in end of phase II in the framework developed by Dennis Anderson, yet had a low per capita manufacturing valuo added. This picture is further confirmed when we look at Table 4.2 which gives us the figures for valuo addod.

Table 4.3
Employment and per capita manufacturing value added in all-India and Southern States, 1961 & 1981.

	Per Capita Mfg. value added in 1960-61 at constant 1970-71 prices(Rs)		Employment percentage Household sector		Census sector		Noncensus sector	
	(1) 1961	(2) 1981	(3) 1961	(4) 1981	(5) 1961	(6) 1981	(7) 1961	(8) 1981
India	67.32	105.49	55.03	31.72	17.41	20.50	27.52	47.78
Andhra Pradesh	37.34	75.12	75.00	47.88	7.46	19.00	17.54	53.00
Karnataka	66.74	144.40	55.64	36.18	12.22	16.33	32.14	47.49
Kerala	47.12	106.26	47.68	24.16	13.85	18.96	38.48	56.88
Tamil Nadu	79.20	169.73	57.34	31.84	11.41	19.15	31.26	49.01

SOURCE: (1)&(2) Estimates of State net domestic product
(3) (5)& (7) A. Vaidyanathan & M.Eapen CDS WK paper 199.

Table 4.4

Structure of non-factory Manufacturing Sector for certain categories of units - Employment, 1978-79.

(in '000 nos)

	India	Andhra Pradesh	Karnataka	Kerala	TamilNadu
1.DME Units	3813 (20.99)	226 (13.99	159 (19.04)	249 (21.92)	675 (27.92)
a) DME household	924	-	-	-	-
b) DME Nonhousehold	2889	-	-	-	-
2. NDME Units	2786 (15.33)	212 (13.13)	101 (12.10)	268 (23.59)	359 (15.26)
3. Own Account enterprises	11571 (63.68)	1177 (72.88)	575 (68.86)	619 (54.49)	1337 (56.82)
4.Total Non Factory Sector*1	18170 (100.00)	1615 (100.00)	835 (100.00)	1136 (100.00)	2353 (100.00)
5. Total Non Factory Sector*2	18314	1705	1273	1002	2139
6. Total Manu employment*3	25279	2354	1613	1248	2853

Notes:

1. (*1) as per DME + NDME + OAE
2. (*3)as per census of India 1961 and 1981 and estimated for 1978-79
3. (*2) Total manufacturing minus ASIf.4.Figures in brackets are percentage share to total manufacturing sector (*1)

Within the non-factory manufacturing sector based on the survey data given in Table 4.4 we see the low share of OAE (54%) in Kerala in terms of employment as compared to 64% in India in 1978-79. Even Tamil Nadu which was a more industrialised state than Kerala had a higher share. Concommitently we observe the high share of DME and NDME units particularly the NDME units. The share of DME and NDME together in Kerala was more than that

in Kerala, Karnataka, Andhra and India. In Tamil Nadu we see an increasing preponderance of the larger of the non factory units ie. DME whereas in Kerala there is a preponderance of the middle sector of the non factory sector which is indicated by the large share of NDME units.

This gives us an important clue in understanding the non factory non household sector in Kerala. While this sector is large indicating an "advanced" basic structure,Kerala has little of the truly modern small sector as suggested by the relatively lower share of the DME units unlike in Tamilnadu, the state closest to Kerala in terms of basic structure. We shall take up this issue later.

The same pattern is confirmed by the figures for value added which are given in table 4.5. Furthermore, tables 4.4 and 4.5 bring together in row 4 and 5 the estimates of total employment and value added in the non-factory sector forms two different sources. Row 4 in Table 4.4 gives the employment as a total of DME, NDME and OAE whereas row 5 is obtained by subtracting the ASI factory sector from the total manufacturing employment. Similarly in table 3.5, row 4 gives value added in the non-factory manufacturing sector as the sum of value added in DME., NDME and OAE units whereas row 5 is value added obtained from SDP and NAS in the unregistered manufacturing sector. We observe a divergence between the sets of figures as also between row 4 and 5 of table 3.4 for employment. In both tables we find that the figures in Row 5 are generally higher than in row 4 the exception being for employment in Kerala and Tamil Nadu. So to the extent that row 5, Table 4.4 is obtained by substracting from

Table 4.5

Structure of non factory Manufacturing sector in all-India and Southern States in terms of Value added, 1978-79

(Rs. in Lakhs)

	India	Andhra	...nataka	Kerala	TamilNadu
1.DME Units	114523 (38.68)	4367 (24.41)	3636 (33.73)	5377 (38.Ø6)	15947 (49.3Ø)
a) DME household	2Ø253	-	-	-	-
b) DME Nonhousehold	94270	-	-	-	-
2. NDME Units	61679 (2Ø.83)	3979 (22.24)	2155 (19.99)	4Ø15 (28.41)	5884 (18.19)
3. Own Account enterprises (OAE)	119861 (4Ø.48)	9543 (53.34)	4988 (46.28)	4737 (33.53	1Ø518 (32.51)
4.Total Non Factory Sector*1	296Ø63 (1ØØ.ØØ)	17889 (1ØØ.ØØ	1Ø779 (1ØØ.ØØ)	14129 (1ØØ.ØØ)	32349 (1ØØ.ØØ)
5. Total Non Factory Sector*2	491Ø89	27584	37896	17837	37769

(*1) as per DME + NDME + OAE
(*2) as per SDP and NAS (unregistered sector)
(*3) figures in bracket are percentage shares to total (4)

census total manufacturing the ASIF as reported, which do not include employement in the defence production units, row 5 should be more than row 4. Yet the difference may not be entirely due to this factor alone, since the difference between row 5 and row 4 for Karnataka is more than that for India.

Thus, there are significant difference between census and survey (DME, NDME, OAE) estimates. The difference between row 5 and row 4 in Table 4.5 in value added between SDP/NAS is again too large. Hence row 5 is directly obtained from SDP/NAS as the unregistered sector and since there are hardly any defence units

in the unregistered sector the question of lack of coverage of defence units in the surveys is not the factor underlying the difference. The difference is intrinsic to the sources. It is simply due to the errors of estimation in the two sources. What is surprising is that the surveys like DME and NDME+OAE which are inter alia supposed to serve as bench mark surveys for the estimation of NAS, are so different from the NAS. The NAS/SDP itself is likely to be underestimates,for 1978, because of the shift in employment from the household sector to the non factory non household sector as is argued by A. Vaidyanathan and Mridul Eapen. Thus the DME, NDME and OAE being less than the NAS/SDP are gross underestimates. (The NDME itself admitted that some of the blocks were excluded in the final tabulation and so reported figured of value added, employment as per enterprise estimates, rather than as true value). Their value therefore lies not in their global estimates but in the structural ratios of all sectors to which they pertain, and also in permitting us to make an inter state comparison, where the underestimation may not be all that severe a problem if it is systematic and does not vary much across states.

We have looked at the structure in 1978. It is possible to looked at the structure at other points in times. Census data allows us to look at the structure of industries and or organisational categories simultaneously in terms of employment in Kerala and India in 1961 and 1981 and hence work out the changes which, have come about during this period.

Data for 1961 and 1981 given in table 4.6 clearly shows that the share of the household units has declined significantly from 1961 to 1981,in India and all the states except Karnataka,

Table 3.6

Structure of manufacturing sector of India,AP,Karnataka,Kerala and Tamil Nadu in certain categories of units in terms of employment, 1961,1981 (in nos)

	1961					1981				
	Household Units	NON HOUSEHOLD ASIC	NON HOUSEHOLD Others	NON HOUSEHOLD TotalNHH	Total manufacturing	Household Units	NON HOUSEHOLD ASIC	NON HOUSEHOLD Others	NON HOUSEHOLD Total NHH	Total manufacturing
INDIA	9931095	3170443	4004951	7975394	17906489	8421968	5444068	12688470	18132538	26554510
	(55.46)	(17.71)	(26.83)	(44.54)	(100.00)	(31.72)	(20.50)	(47.78)	(68.28)	(100.00)
						[0.82]	[2.74]	[4.71]	[4.19]	[1.99]
ANDHRAPRADESH	1815154	141595	334000	475675	2290829	1161933	403428	859936	1265364	2427297
	(79.24)	(6.18)	(14.58)	(20.76)	(100.0)	(47.87)	(16.63)	(35.30)	(52.13)	(100.0)
						[2.21]	[5.44]	[4.82]	[5.01]	[0.29]
KARNATAKA	421888	121816	68122	189938	611818	606391	246284	887849	1134133	1740524
	(68.96)	(19.91)	(11.13)	(31.04)	(100.0)	(34.84)	(14.15)	(51.01)	(65.16)	(100.0)
						[1.83]	[3.58]	[13.78]	[9.35]	[5.37]
KERALA	482668	120581	408891	529472	1012140	317728	212846	756046	968892	1285774
	(47.69)	(11.91)	(40.40)	(52.31)	(100.0)	(24.71)	(16.49)	(58.58)	(75.29)	(100.0)
						[2.87]	[2.86]	[3.12]	[3.06]	[1.28]
TAMILNADU	1206812	228856	617446	848302	2055114	973182	531251	1499863	2031114	3004296
	(58.72)	(11.14)	(30.14)	(41.28)	(100.0)	(32.39)	(17.68)	(49.92)	(67.61)	(100.0)
						[1.87]	[4.30]	[4.52]	[4.46]	[1.92]

Notes

1.Household,Total Non Household and Total Manufacturing taken from census 1961&1981,General Economic Tables

2.ASIC taken from ASI census sector Volume 1 for 1961 and 1981-82

3.Others was obtained by subtracting from the Total Manufaturing the ASIC

4.Figures in brackets give the share in the total manufacturing

5.Figures in [ ] gives the rate of growth or decline in employment

though there are variations in the rate of decline. This confirms to the pattern of change to which M. Eapen and A. Vaidyanathan based on the five percent census 81 tabulation had drawn attention to. Even in 1961 Kerala had a low share in household relative to all- India. Between 1961 and 1981 Kerala showed a further decline in household employment. The decline in household employment was the same in terms of percentage points in Kerala and India. However, the rate of decline in Kerala (2.Ø7%) was faster than in India (Ø.82%)

The NHH showed growth in India and Kerala and the states. However their growth in Kerala was less compared to that in all-India and states. Within the household sector the non factory units or the middle sector showed the highest growth rate except in Andhra Pradesh where the factory sector had a higher growth rate. Though the factory sector grew at a slower pace, in Kerala it was much slower than in all-India. In otherwords, the decline in the HH sector has been very large and the absorption in the ASIC and "middle sector" was insufficient to give rise to an overall increase in employment in the manufacturing sector as a whole. The growth rate in the "middle sector" and the ASIC sector was comparitively less than in India. The net result is that the employment in the manufacturing sector as a whole and as a percentage of population has actually come down very significantly from 6.Ø2% to 5.Ø5%. The decline in the employment in the manufacturing sector as a percentage of the total population is a phenomenon that is common to all states and all India and reflects the shaky basis of industrialisation in the country as a whole. Nevertheless there are differences between the states in percentile terms. This aspect we shall take up

later.

For the present the principal observation that we would like to make is that the "middle" sector grew at a rate much lower than that for all-India. The rate of growth of the "small" sector was slower in Kerala than in nearly all states. It was a wee bit faster over only West Bengal see table 4.7. This pattern of slow growth of the "small" sector is contrary to what Dennis Anderson's categorisation of regions into phases would lead us to expect. With the given advanced structure in Kerala in 1961, low household sector, high middle sector in 1961, Kerala was as said earlier well on to the middle of phase II during which the "middle" sector is expected to grow very fast. That it did not, while the HH sector continued to decline is the principle fact on which we would like to focus our attention. We will later show that given Kerala's structure in 1961 both in terms of industries and organisational categories, if industries and organisational groups had grown at the average rates obtained for India then Kerala should have in fact grown faster than India, thus giving added support to our expectation that given Kerala's advanced structure in 1961, its "middle" sector should have grown faster.

Table 4.7

The "Small" sector and its growth between 1961 & 1981

	Employment, Nos ØØØ		Point to point compound
	1961[1]	1981[2]	growth rate 1961-
Andhra Pradesh	334[3]	856[4]	5.44
Bihar	25Ø	528	3.81
Gujarat	228	942	7.35
Punjab & Haryana	278	643	4.28
Karnataka	68[3]	888[4]	13.7Ø
Kerala	4Ø9	756[4]	3.12
Madhya Pradesh	235	659	5.29
Maharashtra	654	1Ø83	4.Ø4
Orissa	62	247	7.16
Rajasthan	128	5ØØ	7.Ø5
Tamil Nadu	619[3]	15ØØ[4]	4.52
Uttar Pradesh	549	1164	3.83
West Bengal	641	1182	3.11
India	48Ø5[3]	12668	4.71

1. From M. Eapen and A. Vaidyanathan unless otherwise stated; based on 1961 Census, non household employment in manufacturing sector minus the ASI factory sector employment.

2. From M. Eapen and A. Vaidyanathan unless otherwise stated; based on 1981 Census 5% quite tabulation, non household employment minus the ASI factory sector.

3. Based on 1961 census, non household employment minus ASI factory sector in manufacturing activities.

4. Based on 1981 census, non household employment minus ASI factory sector in manufacturing sector.

Section III

Organisational Structure: Industry Groupwise

In this section, we will look at the industrywise and organisational category wise structure and growth in Kerala and all-India. Table 4.8 gives the employment in 1961 and 1981 in all-India and Kerala. At the all-India level we find that out of 14 two digit industry groups as many as 11 showed decline in household sector employment while three industries showed growth out of which industry 28 (paper, paper products and printing) showed very small growth. Only industry 30 (Rubber and Rubber products, plastics, petroleum and Coal) showed a high growth rate of 8.89% in HH Sector. According to Dennis Anderson different industries may vary somewhat from the expected pattern characteristic of a particular phase. We would therefore like to know in how many industries the pattern of decline in household employment and fast growth of small sector holds good in all-India and in Kerala. While seven industries confirmed to the overall picture in all-India, in the remaining industries the large factories were growing faster.

The large share of other textiles (26) [see table 4.9] metal, metal products and machine tools (33,34,35), Miscellaneous industries and Repair services (38,39) in India and cotton textile industries silk, wool and synthetics (23) other textile (26), wood and wood products furnitures and fixture (27) and non metallic mineral products (32) in Kerala which followed the overall pattern ensures that despite the variation between industries the overall pattern is of one small units growing faster than the large units. Therefore among other things we would lay much more emphasis on the share of HH sector in

Table 3.8 Growth and Contribution of Each Industry to Total Change

Industry group	Husehold				ASIC				others1*				TALNHH				GRAND TOTAL			
	GR		Change		GR		Change		GR		Change		GR		Change		GR		Change	
	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA	INDIA	KERALA
20,21	(4.09)	(2.07)	(7.46)	(6.89)	5.08	2.10	7.69	14.66	1.13	(3.03)	2.07	(8.96)	2.88	0.56	9.76	5.70	0.43	(0.09)	2.30	(1.20)
22	(3.40)	0.18	6.17	0.16	3.38	#	1.12	2.17	4.45	3.75	4.99	21.55	4.20	4.02	6.11	23.73	3.76	3.51	12.28	23.89
23	(2.89)	2.83	(16.67)	16.74	0.43	(0.17)	1.26	(0.19)	7.00	8.26	15.24	49.69	3.16	6.23	16.82	34.66	0.01	4.44	0.14	51.39
26	(0.24)	(9.77)	0.26	(68.51)	8.82	9.58	0.65	1.21	5.55	2.13	15.17	16.71	5.62	2.24	15.82	17.92	3.12	(3.01)	15.85	(50.59)
27	(0.73)	0.12	(2.51)	0.69	(0.67)	11.85	(0.53)	1.35	3.86	1.41	7.18	11.38	3.66	1.55	7.13	12.73	0.85	0.96	4.62	13.42
28	1.66	3.67	0.78	0.12	2.41	7.13	0.97	2.61	5.14	3.88	2.90	3.89	3.98	4.71	3.86	6.50	3.87	4.69	3.94	6.62
29	(4.74)	(0.51)	(4.21)	(0.04)	6.40	#	0.36	-	0.52	0.77	0.27	0.16	1.09	0.77	0.63	0.16	(2.39)	0.42	(3.59)	0.12
30	8.89	12.76	0.11	0.32	5.09	9.71	0.89	1.69	10.99	7.57	2.02	3.89	7.92	8.09	2.91	5.58	7.95	8.23	3.02	5.89
31	(0.32)	(4.55)	(0.04)	(0.78)	5.52	5.77	2.84	3.74	4.58	6.49	2.47	7.00	5.03	6.22	5.31	10.74	4.51	5.08	5.27	9.95
32	(1.14)	(2.11)	(2.02)	(2.55)	2.39	(0.93)	1.13	(0.69)	3.68	3.40	6.03	8.68	3.39	2.40	7.16	8.00	1.30	1.18	5.14	5.44
33,34,35	(0.84)	(1.38)	(0.85)	(1.96)	3.25	9.03	4.87	2.39	8.62	3.43	12.85	6.16	5.80	4.11	1.77	8.55	4.05	1.84	16.87	6.59
36	(1.02)	(1.61)	(0.11)	(0.005)	4.69	14.31	1.71	2.22	2.50	8.01	0.88	1.75	3.60	10.37	2.59	3.98	3.52	10.22	2.58	3.97
37	(7.62)	(0.32)	(0.05)	(0.007)	15.74	11.52	4.96	1.39	(9.28)	(5.54)	(5.17)	(2.95)	(0.18)	(2.09)	(0.21)	(1.55)	(0.52)	(2.04)	(0.66)	(1.56)
38,39	5.70	1.97	10.38	2.44	3.36	2.17	7.86	0.85	8.66	8.48	21.06	22.77	8.06	7.57	21.85	23.62	7.08	5.86	32.25	26.05
2&3	(0.82)	(2.07)	(17.45)	(60.28)	2.74	2.86	29.17	33.43	4.98	3.12	88.28	26.87	4.19	3.06	117.45	160.28	1.99	1.20	100.00	100.00

Notes

Others1*=Total NHH minus ASIC i.e includes small factory and nonactory units in yhe non household sector

1.Cotton textiles(23) includes industry group 24(jute,mesta and other textiles and 25(woollen and silk and sythetic fibre

2.Fiures in brackets indicate negative growth.

3.hypen indicate that there were no units in that group in that particular sector.

4.# indicate that growth couldb\not be calculated because there were no units in 1961

5.Change= absolute change as a percentage of total absolute change.

Table 3.9: Share of each Industry in Certain Organisation Categories in terms of Employment (figures in per centage)

Major Industry Group NIC	Household (H)				ASIC (A) Large factories				Others1(B-A) "Small sector"				Nonhousold(B)				All Manufacturing			
	INDIA		KERALA		INDIA		KERALA		INDIA		KERALA		INDIA		KERALA		INDIA		KERALA	
	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981	1961	1981
20-21	11.46	5.86	11.42	11.41	13.43	19.42	64.42	55.55	14.12	7.04	13.06	3.82	13.87	10.75	24.75	15.15	12.53	9.20	18.39	14.22
22	5.64	12.99	2.42	3.81	3.50	3.65	0.00	2.81	6.16	5.86	13.23	14.96	5.18	5.19	10.22	12.30	5.44	7.67	6.50	10.20
23,24,25	32.71	21.45	12.69	33.70	41.72	24.59	13.14	7.23	9.30	14.30	5.99	15.87	21.17	17.34	7.61	13.96	27.57	18.63	10.03	18.84
26	9.32	11.01	44.53	8.65	0.19	1.14	0.53	1.87	13.53	15.73	21.31	17.57	8.64	11.35	16.58	14.13	9.02	11.24	29.91	12.78
27	16.02	16.03	16.15	25.13	1.24	0.58	0.37	1.95	10.86	9.22	23.53	16.84	7.34	6.63	18.25	13.58	12.15	9.70	17.25	16.44
28	0.17	0.29	0.07	0.21	4.67	4.04	1.99	4.50	2.87	3.12	2.28	2.64	3.53	3.40	2.22	3.05	1.67	2.41	1.19	2.35
29	5.90	2.64	0.23	0.32	0.43	0.80	0.00	0.00	4.17	1.84	0.64	0.40	2.80	1.53	0.49	0.31	4.52	1.88	0.37	0.31
30	0.02	0.14	0.02	0.30	1.55	2.25	0.71	2.58	0.49	1.57	0.79	1.83	0.88	1.78	0.77	2.00	0.40	1.26	0.41	1.58
31	0.47	0.52	0.73	0.44	4.36	6.84	4.10	7.16	2.92	2.85	1.86	3.54	3.45	4.05	2.37	4.33	1.80	2.93	1.59	3.37
32	8.55	8.01	4.16	4.13	5.54	4.77	9.19	4.34	9.74	7.99	6.10	6.44	8.20	7.02	6.81	5.98	8.40	7.34	5.55	5.52
33,34,35	4.73	4.71	4.60	5.29	16.11	16.38	1.17	3.75	5.20	10.83	4.28	4.54	9.20	12.50	3.57	4.37	6.72	10.03	4.06	4.60
36	0.05	0.05	0.01	0.01	3.37	4.52	0.37	3.08	2.36	1.54	0.32	0.81	2.73	2.44	0.33	1.31	1.25	1.68	0.18	0.99
37	0.49	0.12	0.07	0.09	0.83	8.32	0.40	2.03	9.99	0.05	2.90	0.50	6.63	2.82	2.33	0.83	3.23	1.96	1.25	0.65
38,39	4.45	15.91	2.90	6.50	3.07	2.89	3.60	3.14	8.30	17.66	3.72	10.25	6.38	13.23	3.69	8.70	5.31	14.08	3.31	8.15
Total 2&3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

manufacturing and the changes therein in identifying the position of a particular region/state in the Dennis Anderson's scheme of evolution.

In Kerala too the overall decline in HH is largely reflected across industries. Except in six industries out of 14 all others showed absolute decline in HH sector employment. Among the six industries in three the Household sector grew the slowest. Only in industry group 3Ø (Rubber and Rubber products, plastics, petroleum and coal) did the household sector show a high growth rate of 12.76%. Again in eight industry groups small units grew faster than the large units. In the remaining it was actually the large factories that grew faster. This again confirms the validity of the primacy of the HH sector in identifying the position of a region/state in Dennis Anderson's scheme at least in so far as early phase are concerned.

We now go on to the differences between Kerala and India. In India Beverage and Tobacco (22) paper, paper products, printing and publishing (28) Rubber, Plastics, Petroleum and Coal (3Ø) and Mis industries and Repair services (38,39) and in Kerala Beverages and Tobacco (22), textiles (23) wood and wood products (27), paper, paper products, printing and publishing, Rubber, Plastics, Petroleum and coal (3Ø) and Miscellaneous industries and Repair services (38,39) did not show a decline in HH sector employment. As many as four of the industries groups are therefore common. This again confirms the view that a fall in the household sector with industrialisation has general validity.

That four industries did not decline is easily understood when we look into the detailed constitution of these industries in the household sector. Misc.industries and Repair Services

(38,39) at the household level consists of repair services which has a great dynamic link with demand created by use of household gadgets, machinery and have a high labour intensity and hardly any economies of scale but instead by operating at small scale are able to make use of locational advantage.[7] They are likely to be industries that are positively linked to modernization and economic growth in general. Similarly, the peculiarly indegenous biri industry, which constitutes the bulk of industry- group 22 at the household level and which is largely free from taxation in contrast to the cigarette industry and faces a demand linked to consumption pattern rather than industrialisation. It is not surprising that this industry should have shown an expansion in HH employment,when heavy taxation has curtailed the expansion of organised cigarette industry,under conditions of growing demand.

In Kerala, industry group 3Ø (which include Rubber, plastics, petroleum and coal) has shown growth in all organisational/scalar categories. This is a case of locational advantage enjoyed by Kerala in rubber based industries since Kerala singularly account for almost all of the rubber (raw) output in India. In all-India this consists largely of plastics and rubber good industries. Industry group 27 (wood and wood products) showed a marginal growth (Ø.12%) in HH sector in Kerala which was lower than the non factory units and ASIC units.

It is interesting to note that industry group 29 (leather and leather products) and 37 (machinery and transport equipment) showed an overall decline in India whereas Food products (2Ø.21), other textiles (26) and machinery and transport equipment (37) showed an overall decline in Kerala. Though industry 29 (leather) showed growth in small units and large units the decline in

household was much too larger than its growth in other sectors in all-India and Kerala. Again Machinery and transport equipment (37) showed growth only in ASIC both in Kerala and all-India but the growth was not large enough to make the overall growth of the industry positive. Food products (2Ø-21) in Kerala showed growth only in ASIC. Industry 26 (other textiles) which in Kerala is largely coir and coir products showed a decline in HH sector. This industry was mainly organised as a household industry. It is surprising to see a growth of the industry in the small units and ASIC. However the decline in HH sector was too large and this industry as a whole showed a decline.

Rank order of the growth between the organisational categories for all-India and Kerala are largely similar across industries. This has to be looked at in a systematic manner. The household sector showed a decline, non factory or small units registred the fastest growth and the factory sector an inbetween growth rate. This pattern is largely confirmed for Kerala and all- India level except that there are sectoral variation in the top growing industeies. Household sector had the lowest growth in India and Kerala except in rubber products, plastics, petroleum and coal (3Ø) and transport equipment (37) where the small units showed the lowest growth in both India and Kerala. In industry group 3Ø (rubber) in Kerala Household sector showed the highest growth in employment.

Now we will look at the industries which contributed significantly to the absolute changes that have taken place (see table 4.8). We see a decline in Household sector both in all-India and Kerala, the decline in Kerala was much steeper than in India. The increase in the large units (ASIC) in all industries

is comparable between Kerala and all-India; but the contribution of small units in Kerala is much less. These changes can be largely accounted for by changes in a few industries. Decline in Household sector in India is largely accounted for by the decline in textiles (23) and Food products (2Ø-21), which together accounted for more than the overall decline in HH sector. Industry group (38.39) miscellaneous industries and Repair services however showed a significant increase. In Kerala the decline in coir (26) contributed as much as (-) 68.51% to the total change which is larger than the overall decline in the HH sector. Texile (23) where India showed a decline expanded in Kerala. This is very much an exceptional pattern. We would suggest that without strong evidence, that the spurt in demand for industrial and commercial attire with increased spending in Kerala, over the seventies and eighties may have been responsible for this pecularity although we do not have statistical evidence to support this view.

In Kerala the important industries compensating for the decline in Household sector was the industry group 23 (textiles) in the small sector which contributed as much as 5Ø% of the change. Other significant contributors were Beverages and tobacco (22), Miscellaneous industries and Repair services (38,39), other textile (26) and wood and wood products (27) in the small sector. Food products (2Ø.21) was the only significant contributor to change in the large sector.(ASIC).

In India however, the contribution to change was shared more evenly across industries. Miscellaneous industries and repair services (38,39) Metal, Metal Products and machinery (33,34,35), other textiles (26) and textiles (23) in the small

sector and food products (2Ø-21) and Miscellaneous industries and repair services (38,39) in the large sector were all significant contributors to the change. Industries 38-39, 26 and 23 have behaved in the same way in India and Kerala and their contribution to change has been important in both India and Kerala.

Section IV

Structure Vs Regional Factors: A Decomposition Exercise

The discussion in the previous section lead us to support that the broad agreement in the rank order of growth for the organisational categories across industries between Kerala and India, as also the broad agreement in the cells that significantly contributed to decline and increases in employment between 1961 and 1981, suggest that the differences in growth rate in all-India and Kerala may not be due to structural factors. To take up this issue in this section we will do a detailed analysis of structural vs regional factors.

It is possible to breakup the divergence of the growth rate (simple) between a region and a nation into a part that emerges out of the differences in the industrial structure of the region vis-a-vis that of the nation and the other which arises out of differing growth rate given the same industrial structure. The first part is called the structural component of the divergence and the second is the regional component. The structural component tells us what would have been the divergence if the industries as existing in the initial period in the region were to grow at the same rate as in the nation. The regional

component measures the contribution to divergence arising out of the weighted aggregation of the divergence of individual industries growth rates in regions from the same industries growth rate in the nation. The two together[8] is equal to the total divergence. Thus:

$$g_k - g = \sum_{i=1}^{n} g(i)\left(\frac{y^0_{k(i)}}{y_K} - \frac{y^0_{(i)}}{y_0}\right) + \sum_{i}\left(g_{k(i)} - g_{(i)}\right)\frac{y^0_{k(i)}}{y^0_k}$$

where gk = simple growth rate of characteristic Y of the region k
g = simple growth rate of characteristic Y of the nation
gk(i) = simple growth rate of characteristic Y of the ith industry in region k
g(i) = simple growth rate of characteristic y of the ith industry in the nation
Yok(i) = the value of the characteristic y in the ith industry in region K in the initial year
Yok = the value of the characteristic over all industries in region K in the initial year.
Yo(i) = the value of the characteristic of the ith industry in the nation in the initial year
Yo = the value of the characteristic over all the industries in the nation in the initial year.

The following discussion[9] would clarify why we identify the first term with structural and the second term with regional factors. "If we classify all products groups into two broad types: 'old' industries or products having significant weightage in the states initially and 'new' industries or products that had low or zero weightage initially but whose weights increased between 'o' and 't' than the interstate growth differential can be understood in terms of

(a) existing locational pattern of 'old' industries given inter industry growth differential.

(b) changing locational pattern of new firms in old industries, differential performance of old firms in old industries.

(c) emerging locational pattern of new industries.

Out of the above, (b) is clearly a function of certain

specific features of the states themselves and hence can be called a result of regional factors. This will be reflected in the second term in our identity. (a) is a function of the inter state diØfferences in the initial structure and can be captured in the first term of our identity. But what about (c)? Location of new industries may be due to conditions specific to the state such as labour, enterpreneurship etc (ie regional factor) or purely due to product specific factors such as location of raw materials etc. There is no statistical device of isolating these two effects. Yet in application of this formula in this chapter we do not encounter this problem because at two digit level of disaggregation Kerala and India both have all the industries in the initial year. Even at the level of particular organisation category of a particular industry { eg. HH sector in industry group 23 (textiles)} there are no cells which are vaccant in the initial year. The characteristic which we have choosen in employment. When we bring into the ambit the organisation category for each 2 digit industry we are forced to use the Census data and hence the characteristic employment. As mentioned earlier in bringing about compatability between SIC used in census 1961 and ASI classification used in ASI 1961 and NIC 7Ø used in census 1981 and ASI 1981 the twenty or so industry groups at 2 digit collapse into 14 industry groups.

Subrahmanian and Pillai[1Ø] studying the causes for industrial backwardness in Kerala points out that structural factors have to a great extent retarded the growth of this region. Their point is that Kerala's industrial structure in being highly specialised has not being able to attract new and fast growing industries with high linkage potential. Their

structural factor include only that which arises from Kerala missing out on new industries. In our analysis the regional factor includes both the purely regional factor and the factor arising out of Kerala missing out on new industries.

In the first part of analysis we have 14 x 3 "industries" or cells. In treating each cell seperately as an industry we are assuming that not only is an industry say 3Ø distinguished from another say 31 but HH 3Ø is disginguished from ASIC 3Ø and from "small" sector 3Ø (ie NH -ASIC). There is much meaning in this assumption because HH units are fundamentally different organisationally from small units and HH units do not typically evolve into small units. While small units in Dennis Anderson's framework do evolve into large units, they do so only towards the end of phase II and in phase III. So the extent that India is somewhere between Phase I and phase II certainly well inside the initial part of phase II few small units would be evolving into large. The structural factor obtained with these 14 x 3 industries thus gives the contribution to divergence due to net structural divergence of Kerala rising out of both organisation category and industrial distribution from all-India. In the second stage when we carry out the analysis over the 14 industry groups the structural factor give the contribution to divergence due to the divergence of the industrial distribution of Kerala from that of India. Similarly, when the analysis is done for the three organisational categories alone the structural factors represent the contribution to divergence due to the difference between Kerala and all-India in terms of organisational changes.

Table 4.1Ø
Decomposition of the Growth Rate in employment between 1961 and 1981 in the manufacturing sector into structural and Regional Factors.

Level of disaggregation	Contribution of structural factors	Contribution of Regional factors	Total divergence
Over 2 digit 14 industries	Ø.1Ø2914 (48.41)	-Ø.31551 (-148.41)	-Ø.2125 (-1ØØ.ØØ)
Over 2 digit Organisational categories x Industry (42 cells)	Ø.274393 (129.Ø9)	-Ø.48695 (-229.Ø9)	-Ø.21256 (-1ØØ.ØØ)
ver organi-sational Categories	Ø.19Ø369 (89.56)	-Ø.4Ø293 (-189.56)	-Ø.21256 (-1ØØ.ØØ)

Note: Figures in bracket gives percentages to total divergence.

The results of these exercises are presented in table 4.1Ø. From the table we see that the divergence itself is negative which means that the growth rate of Kerala is less than that in all-India. Structural factors are positive whereas the regional factors are negative. This would mean that the regional factors have been important in determinig the growth in Kerala and that the structural factors have acted away from the direction of divergence. Given the structure in Kerala,the manufacturing sector should have grown faster than India's. But the regional factors are too overpowering. When we take the 14 industries at the two digit level of disaggreation we find that the regional factor is less overpowering. When the basic organisational categories are used as the structure the regional factor is even more overpowering. This would suggest that the

regional factors have to a great extent affected the growth of the small units in Kerala. When we take both the 14 industries and the 3 basic organisational categories together the regional factors becomes even more overpowering. Structural factors in terms of the industrial composition and in terms of organisation are to a large extent independent of each other. Thus the interaction factor between the two is very small (-)Ø.Ø2 or 6.88% of the total structural factor

These results confirm to what was found by T. Roy. His study was limited to the census sector of the ASI and the characteristic used was output. The study pertained to the period 196Ø-1979/8Ø, the exercise was also done for three sub periods 196Ø-65, 1965-74/75 and 1974-75 to 1979-8Ø. He found that in the first period in Kerala the structural factors had a higher absolute value compared to the later period but the regional factors were still prominent. In the middle phase in Kerala the regional factor was higher and the structural factor almost disappeared. Again in the third period in Kerala the strength of the regional factor came down but the association of the regional factor with the total growth rate remained.

It would have been an interesting to carry out the same exercise, as we have done above for sub periods between 1961 and 1981, but this is not possible given the census data.

The overriding importance of "Regional" factor in keeping Kerala's overall industrial growth slower than India's is further confirmed when we carry out the exercise for each individual organisational category. From Table 4.11 it is evident that all regional factors are high and negative, all being nearly 1ØØ% or more, structural factors on the other hand show great

variation but are generally positive, except in the case of "Small" sector where it is weakly positive.

The decomposition for the census sector were the divergence is too low but positive show that structural and regional factor have acted against each other to more or less compensate. Structural factors are important and this finding does not really contradict T. Roy's finding for the ASIC over the later period having reduced in importance because our study has only 2 points in time namely 1961 and 1981 and the initial point 1961 being the same as T. Roy earliest initial point.

Table 4.11
Decomposition of divergence in growth rate[1] between Kerala and India for each organisational category into structural[2] and regional components.

Organisational Class	Structural factors	Regional factors	Divergence
Household[3]	Ø.Ø74736 (39.38)	(-)Ø.26451 -(139.38)	(-)Ø.18977 -(1ØØ.ØØ)
Nonhousehold[3]	Ø.ØØ6481 (1.46)	(-)Ø.45163 -(1Ø1.46)	(-)Ø.44514 -(1ØØ.ØØ)
ASIC[4]	Ø.6Ø9246 (21696.79)	(-)Ø.6Ø643 -(21596.5Ø)	Ø.ØØ28Ø8 +(1ØØ.ØØ)
NH-AISC	(-)Ø.Ø6435 (-8.26)	(-)Ø.715Ø2 -(91.74)	(-)Ø.77938 -(1ØØ.ØØ)
All categories[3]	Ø.1Ø2914 (48.41)	(-)Ø.31551 -(148.41)	(-)Ø.2126Ø -(1ØØ.ØØ)

1. Point to point simple growth rate per twenty years between 1961 & 1981, in employment.
2. Structural here consists of industrial structure over a 2-digit level of disaggregation
3. From Census 1961 & 1981, General Economic Tables, div.2&3.
4. From Annual Survey of Industries, 1961-62 & 1981-82, employment figures, in the manufacturing sector ie divisions 2 & 3. (See text for details on the method of decomposition)

For the household sector the significant structural factors is positive. This means that Kerala's decline of the HH sector has happened at a slower pace than what India's household sector would have undergone with the same industrial structure as Kerala's. The negative contribution of the Regional factor is in keeping with our earlier suggestion that the continuing decline of the HH sector in Kerala without the expected industrial growth a-la-Dennis Anderson is income lead. For the middle sector and for the non household sector which is largely the middle sector the low role of structural factors suggests that in comparison to either the census or the household sectors the industrial structures are not favourable. Indeed for the middle sector alone the structural factors being negative even if it is small suggests that primitive industrial base (high specialisation) has acted against growth.

Conclusion

From the above analysis we will draw attention to the following important findings. An analysis of the stucture of the manufaturing in terms of employment revealed that the proportion of employment in the household sector in Kerala was lowest as compared to all-India and other southern states. Figures for value added also showed a similar pattern. The per capita manufacturing value added in Kerala however was not in keeping with this fact of low proportion of household employment.

The hosehold sector in Kerala showed a sharp decline in Kerala as comared to all-India between 1961and 1981. However the growth in the non household employment in Kerala was less than in

all-India. Looking at the industrywise picture we found that majority of industries showed a decline in household employment.

In trying to explain the difference in growth rate in Kerala and all-India we found that the divergence is better explained in terms of regional factors. The structural factor which included both industrywise composition and organisation/scalar dimension could not explain the difference in growth between all-India and Kerala. Therefore in our next chapter we will take specific regional factors -wage rates and labour unrest for detailed study.

Notes and References

1. For a comprehensive piecing of the literature on size classwise distribution of employment/manufacturing and the changing pattern therein, particularly with regard to LDC's recent experience see Dennis Anderson (1982)

2. As has been pointed out be M. Eapen and A. Vaidyanathan (1984) and particularly emphasised by R. Nagraj
3. A Vaidyanathan and Mridul Eapen ibid.
4. See Appendix III for the details in this regard.
5. Dennis Anderson ibid
6. See chapter 5
7. Dennis Anderson, p.922
8. We follow the treatment in T.Roy (1984). This relationship is only an identity emerging out of rearrangement of the terms that constitute $(g_K - g)$
9. Follows T. Roy, p.83
10. K.K. Subrahmanian and P. Mohanan Pillai (1986)

Chapter V

REGIONAL FACTORS IN GROWTH

Introduction

In Chapter four we had shown, through a simple decomposition exercise, that the lower growth rate of manufacturing (employment) in Kerala vis-a-vis all India is can be explained more in terms of 'regional' factors. The 'structural' factors included both the industry wise composition of the manufacturing employment as well as the organisational divisions within individual industries. Yet we were cautious in not claiming that the value of the 'regional' factors consisted purely of regional factors. Our concept was that 'regional' factors actually consisted of two things - one the purely regional factors and the other that which arises out of the contribution of new industries.

While it is possible to, doing a decomposition exercise at the three digit level of disaggregation to arrive at an estimate of the latter (contribution due to new industries) we have not carried out this analysis for the following reasons.

(1) Data at the three digit level of disaggregation is available only for the ASI sectors. Again, while it is possible to obtain at the 3 digit level of disaggregation the distribution of employment of 'main' workers one would have to allocate the 'marginal' workers over the 3 digit level based purely on the patterns available for the main workers. Such adjustments may very well be acceptable and probably should be carried out in a more involved study.

(2) More importantly, even if one were to breakup the 'regional' factors into the purely regional and those due to the location of new industries, the task still remains to break up the second component into the purely regional and purely structural. For this exercise there is no simple and neat method. The extremely high value for the 'regional' factors, as also the fact that the 'structural' factors are high would nevertheless mean that there is a very high degree of probability that even if we carry out the analysis at the three digit level of disaggregation the purely regional factors would be quite large. Even if it were zero we are still faced with the problem of explaining the very large contribution due to new industries in terms of purely regional and structural factors, which can never be carried out through a simple decomposition exercise.

(3) Earlier we had said that Kerala is not the only state which had a highly specialised or primitive structure vis-a-vis the metropolitan regions. Secondary regions like Karnataka and Andhra Pradesh also had equally primitive industrial base, but these regions have been able to diversify their industrial base to some extent. In other words, there have been critical junctures when opportunities provided could not be capitalised by Kerala but were apparently utilised by the southern non metropolitan states. Therefore it is safe to believe that the it is the purely regional factors that may have an over riding importance. Hence, in this Chapter we will address ourselves to the task of building up a comparative picture of the working of regional factors in Kerala vis-a-vis other neighbouring states.

Before we take up the specific regional factors such as wage rates and industrial strife, it is important to have a brief

apriori view of the spatial dimension of India's industrialisation. Industrialisation has followed in the wake of hundred years of deindustrialisation under colonialism.[1] The spatial pattern of India's industrialisation presents a rather different pattern from that obtained in the West. It is well known for instance that modern industries had an enclaved origin around metropoliton towns and remained so till independence since the colonial state did not permit industrialisation.[2] In other words the former is the other side of the same coin.[3] With independence the political bases for industrialisation was obtained, and spatially further development would mean not only growth around the enclaved centres but also the spatial spread of industries. In other words, the spatial spread of industries across regions can be explained in terms of agglomeration and scale economies in the existing centres versus lower cost of labour and land in the potential new centres. Further, factors such as specific conditions of labour strife, particular postures taken by State Governments, Centre state relations would explain the differential spread of industries across new regions. Hence, the comparison of Kerala is made rightly with regions (States) such as Punjab, Karnataka, Andhra Pradesh and Gujarat, which at the time of independence were secondary regions. The comparison cannot be with the metropolitan region or the tertiary regions such as Assam and North Eastern region Orissa, large parts of Madhya Pradesh, Eastern Uttar Pradesh which did not have any significant industrial base at the time of independence.

Coming to the southern states the slow growth of regions around Madras in comparison to the entire region indicates that there has been a spatial diversification away from Madras and its

immediate environs. Centres like Coimbatore, Trichirapalli in Tamil nadu, Bangalore, Hyderabad, Palghat represent the spatial spread away from Madras. Similarly the slower growth of Bombay and regions around is being matched by faster growth in centres like Pune, Aurangabad, Ahmednagar, Nagpur, Nasik in Maharashtra and Ahmedabad and Baroda in Gujarat. So the question really is why has Kerala not been able to partake of this spatial diversification.[4]

This chapter is divided into three sections. In Section I, we will briefly discussion regional factors like entrepreneurship, skilled labour, natural endowments public investment and landprices which could have had an impact on the diversification of industrial base and growth of the region. In Section II we take up the discussion on whether or not wage rates have been an important factor in the lack of diversification and growth of industries in Kerala. In the Section III we have tired to look at the severity of labour unrest and their impact Kerala economy relative to that in the metropoliton cities like Maharashtra, West Bengal and Tamil Nadu and to that in the secondary regions Karnataka, Andhra Pradesh and Gujarat. Finally, Section IV sums up the behaviour of regional factors in a systematic manner in Kerala.

Section I

Regional Factors in Kerala: Major Components

We have already mentioned that entrepreneurship is not a particularly important variable in explaining lack of diversification over a long period in Kerala, given the role of

the State in industrialisation and given the fact of mobility of entrepreneurs. Similarly, the lack of availability of skilled labour cannot be considered an important constraint given the mobility of skilled labour across regions and states. This has been a principle fact in India's post independence industrialisation. More importantly, it is from Kerala that the skilled labour has been drawn to other regions where shortages have emerged due to large public investment (Bhilai, Rourkela, Bhopal), not to speak of skilled labour movement from Kerala across the country generally and internationally. Attention therefore will be sharply focussed on the following.

(1) Differences in cost of labour and land between Kerala, Andhra, Karnataka and secondary regions in Tamil Nadu.

(2) Differences between Kerala and these other states in terms of labour strife and militancy.

(3) Differences between Kerala and these other states in terms of their ability to lobby for large public investment.

(4) Possible differences in terms of natural resource endowments and availability of critical natural resources.

Natural resource constraints can restrict the growth of a region. Perhaps this factor was over emphasised in early literature. With the development of transport and communications this factor does not play the same role in ~~under~~developed and late industrialising regions that it would have had in the countries which were earliest to industrialise as the case of Japan and Korea would illustrate. In our context, the question is the lack of diversification of Kerala vis-a-vis that of other secondary regions, to the extent that other secondary regions like Karnataka and Andhra Pradesh without any great metallic resources have diversified better, this factor cannot be a total

and important explanation to the lack of growth of industries in Kerala. Similarly, given the fact of freight equalisation for the most transport intensive and universal inputs to industry namely coal, iron and steel this factor would be of less significance. Neither would shortage of power which has been an important supply constraint to industry in India be a constraint in Kerala. Kerala, has for much of the period of our study been a surplus (power exporting) state. Moreover Kerala is well endowed with hydro electric power resources a large portion of which still remains unutilised.

Public investment is a critical force of development in a late industrialising country/region because it brings forth investment in the private sector through supply of certain key products at subsidised rates and also by creating demand for certain other products. This however does not mean that public investment always leads to private investment in the very same region. The case of Bihar is clearly one in which public investment was not followed by private investment.[5] On the other hand in Karnataka it is possible that public investment has been a major force of industrial growth. Thus while it is true that public investments are a major force of industrialisation in backward countries,[6] conceptually there is no special reason why the push and pull effects of public investment get localised. In other words its impact in terms of regional development need not be better than that of private investment. Hence, the lack of public sector investments even if proved to be true cannot be a total or even an important explanation for the industrial backwardness of a region.

Table 5.1:

Investment (Gross Block and per capita Gross Block) in Central Government Non-Deprtmental Undertakings

States	1979			1980			1981		
	Amount Rs crs	Percentage to total	Investment per capita Rs	Amount Rs crs	Percentage to total	Investment per capita Rs	Amount Rs crs	Percentage to total	Investment per capita Rs
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Andhra	513.89	3.28	1000.37	775.12	4.27	1477.85	987.56	4.66	1844.18
Karnataka	529.82	3.38	1495.99	746.45	4.11	2058.26	864.64	3.99	2328.31
Kerala	382.74	2.44	1557.58	422.84	2.33	1698.68	481.96	2.27	1893.45
Tamil Nadu	615.78	3.93	1313.75	747.74	4.12	1573.06	922.57	4.36	1905.82
Bihar	2877.82	18.36	4296.37	151.67	7.35	4606.16	3541.40	16.73	5055.29
Gujarat	762.24	4.86	2348.24	879.80	4.85	2644.98	1068.45	5.05	3134.57
Maharashtra	976.56	6.23	1625.22	313.94	7.23	2139.24	1826.80	8.63	2989.66
West Bengal	1082.88	6.91	2068.46	540.39	8.48	2881.66	1731.11	8.18	3171.63
Punjab	344.52	2.20	2141.87	362.52	2.00	2206.65	418.64	1.98	2493.54

Note: 1. Column 2,3,5,6,8 and 9 taken from Report of the High Level Committee on Industry, Trade and Power Volume I General Report on Industry, State Planning Board, Trivandrum.

2. Column 4,7 and 10 were obtained by dividing column 2,5 and 8 with the estimated population for the particular

Coming to the situation in Kerala the general feeling that Kerala has not got its due share of public investments is not quite true. Thus from Table 5.1 it is evident that Kerala's share of public investment is broadly in keeping with its share in population (3.7Ø percent) for the year 1981 and is comparable to public investment in Karnatka, Tamil Nadu and Andhra Pradesh (the share in total population was 5.4Ø, 7.Ø4 and 7.79 percent respectively). During the year 1979 to 1981 public investment rose sharply in many states so that in 1981 Kerala had much less than its due share of investment. But this is towards the end of the period of our study and one cannot seek an explaination based on this fact. Of course it is possible to argue that more than the quantum of investment it is the kind on investment that are important in terms of regional development. Thus some scholars have argued that a large portion of the industrialisation around Bangalore has been fostered by the large and specific investment in the public sector.[7] The point therefore remains that the nature and pattern of public investment in Kerala may have acted against regional development.

Certainly industry is not as intensive in use of land as agriculture and other primary activities but typically the land that industry uses is highly priced or becomes highly priced once industries develop. One of the major factors underlying spatial spread of industries is availability of land much cheaper than in industrial centres in the underdeveloped regions. During relocation, industries while they do give up agglomeration economics are able to recoup the benefits arising out of appreciation of land values as industrialisation set in the new centres, provided the units started with excess land than what

was strictly required. In comparison to nearly all the states, land prices- agriculture and wasteland (if at all there is any) is higher in Kerala. Accurate evidence on relative land prices is hard to come by. Yet the fact is rather obvious to any one familiar with the situation in Kerala. Hence there is no way industries can hope to get land cheaply or even to realise the benefits of land appreciation. In a situation where states compete with each other to attract industries, Kerala has very little to offer on the score of land. States have used land grants and or large allotments of land at low prices and over and above the requirements of industry as important attractors. However, this does not give a complete explanation to the lack of diversification and slow growth of industry in Kerala. There are industries which need relatively less land which can be attracted to Kerala. Moreover, once industrialisation set in the difference between prices of industrial and agricultural land would widen which will result in more agriculture being available for industrial purpose.

Section II

Wage- Rate

The problem whether wage rates in Kerala have been significantly more than in all-India and whether this factor has been important in the lack of diversification and relatively slow growth of Kerala's industrial economy, is a difficult one to tackle. Subrahmanian and Pillai have looked at the ASI Census sector of Kerala and from the wage rates obtained therein have concluded that since the ratio of wages by labour employed in

Kerala are much lower than for India, that wage rates in this region are lower than in all-India. Besides, the limitations that arises from confining themselves to the census sector, we would raise a methodological question. Average wage rates obtained either in the aggregate or at the two digit level of disaggregation do not refer to the wage rates for the same activity and wage rates are very much activity specific. Thus Alan Kreuger and Lawrence Summers after a comprehensive survey of wage rates conclude that "the inter industry wage structure is remarkably similar in different eras, in different countries and in different types of workers. Industries with high capital labour ratio, monopoly power and high profits pay relatively high wage". Thus they conclude that "[a] competitive model cannot without substantial modification provide an adequate explanation for inter-industry wage structure".

Hence, when we ask the question whether wage rates are higher in Kerala, lacking the data on wage rates for similar activities it is the differences in the industry composition and in the industrial structure in terms of capital labour ratio to which the problem gets translated, given the finding of Alan Krueger and Lawrence Summers. In other words, the fact of lower average wage rates could be due to the possibility that the census sector in Kerala consists of activities which would pay even lower elsewhere. It is here that Oommen[11] study clearly showed that for comparable activities the wage rates are substantially higher in Kerala than in the neighbouring states. Table 5.2 clearly bring out this point. Oommen also showed that substantial difference in wage rates inter alia, in many of the industries (which are labour intensive and are large industries

in Kerala - Cashew, Coir, Tile, Foundry, beedi) has been an important force for the migration of these industries to nearby states. The evidence of Table 5.2 is important because industries like cashew, coir, beedi etc. are simple labour intensive activities without use of much

Table 5.2: Wage rates in Kerala, Tamil Nadu and Karnataka in 1973

(Rs per person per day)

Activity	Kerala	Tamil Nadu	Karnataka
(1) Rice Mills	9.39 to 13.43	5.ØØ to 6.75	
(2) Oil Mills	11.87 to 14.62	2.25 to 3.35	
(3) Match industry	4.82 to 7.Ø2	2.65 to 4.35	
(4) Minor Engineering	6.Ø3 to 11.48	1.75 to 4.5Ø	
(5) Tile Industry			
(a) Skilled	9.84	5.25	
(b) Semiskilled	9.59	4.25	
(c) Unskilled	8.89	4.ØØ	
(6) Coir Industry			
(a) Counting charge	1.12 per 1ØØØ husks	1.ØØ per 1ØØØ husks	
(b) Charge for taking out from pit	4.ØØ per 1ØØØ husks	1.75 per 1ØØØ husks	
(c) Beating charges	2.8Ø per 1ØØØ husks	1.6Ø per 1ØØØ husks	
(7) For rolling 1ØØØ beedies			
(a) Factory	6.5Ø	4.75	4.5Ø
(b) Non-Factory	5.ØØ	2.5Ø	3.2Ø
(8) Rough casting (per kg)	Ø.8Ø	Ø.31	

Source: Row 1,2,3,4,5a,5b,5c,6a,6b,6c,7a,7b taken from Oommen (1979) and Row 8 taken from Oommen(1981)

capital. They face competitive markets, use the same technology wherever the industry is located, and hence differences in wage rates truly reflect differences in total cost. Yet, to the extent that Oommen study covered mostly the small factories and non factories (coverage of census units was about 21%) we may

question its general application to the census sector in Kerala.

Our task really is not only to show that wage rates in Kerala are significantly higher than in neighbouring states but also that high wage rates have been an important factor in the lack of diversification of the region.[12] Yet in proving the former we would make the latter more probable.

To get a complete picture we will look at the wage rates in four organisational categories of units in Kerala in comparison to all-India and other southern states. Unfortunately, comparable data on wage rates for various organisation is available only for 1978-79. The major sources of information for this analysis are the Annual survey of Industries (ASI) for the census and sample factories, the survey on directory manufacturing establishments (DME) which covers unit employing 6-20 workers with a turnover of Rs. 1 lakhs and the survey of non-directory manufacturing establishments (NDME) and own account enterprises (OAE) which covers all units not covered under the DME. Wage rates for the four organisational categories for Kerala, India, Karnataka, Andhra Pradesh and Tamil Nadu are presented in Table 5.3

The table reveals that in the census sector of the factories in Kerala the wage rates are lower than in all-India and other southern states. In the Directory Manufacturing Establishment units also we find that Kerala has a lower wage rate than in all-India but the highest among the southern states. But in ASI sample sector and the Non Directory Manufacturing and Own Account Enterprise untis the wage rates are the highest in Kerala. From this table we can say that wage rates are dependent on the organisational/scalar category. In all the regions we find

that ASI census sector having the highest wage rate followed by ASI sample, DME and NDME and OAE in that order.

Table 5.3: Wage rate in certain categories of units (1978-79)

(Rs per person per day)

State	ASIC	ASIS	DME	NDME + OAE*
Andhra Pradesh	7.71	2.Ø9	1.Ø4	Ø.1Ø9
Karnataka	7.64	3.38	1.14	Ø.157
Kerala	5.17	4.16	1.24	Ø.233
Tamil Nadu	7.36	3.ØØ	1.23	Ø.133
India	7.91	3.44	1.52	Ø.159

Source:
1. ASIC computed from Annual Survey of Industries Census Sector for 1978-79
2. ASIS computed from subtracting ASIC from ASI factory sector for 1978-79
3. DME computed from Survey of Directory Manufacturing establishments 1978-79, Summary Results for Central Sample
4. NDME + OAE computed from Report on the survey on Non-directory Manufacturing Establishment and Own Account Enterprises, NSS, 33rd round, 1978-79
5. (*)These figures looks a little unrealistic but however we are reporting the same.

The NDME + OAE category which is similar in terms of labour process (using traditional method of production, and manufacturing, intensity of labour and capital, skill requirements and generally face competitive markets) across states show much higher wage rates in Kerala and this comparison is therefore meaningful. On the other hand, in interpreting the expost average wage rates obtained for DME, ASIS, ASIC sectors the difficulty increases in that order rendering any direct use of the same invalid.

In what follows we will take up at a 2 digit level of disaggregation a comparison of obtained wage rates and partial productivity of labour across states for each organisation seperately for 1978-79.

Table 5.4: Wage-Productivity Relationship in certain categories of units in Kerala (1978-79) by industry relative to India

	ASIC	ASIS	DME	NDME + OAE
(a) Higher wages rates and lower labour productivity	Chemicals	Wood products, paper&printing,leather, machinery & machine tools, Transport Equipment	Tobacco + Beverages, Wool +Silk, Wood products, Non-metallic minerals products, Basic alloys, Metal products,	Tobacco + Beverages, Transport Equipment, Wood products, All industries
(b) Lower wages rates and higher labour productivity	Electrical machinery	-	Miscellaneous Industries	-
(c) Higher Wage Rates and Higher Labour Productivity	Tobacco + Beverages, Textiles, Wool + Silk, Other textiles, Wood products, Paper and Printing, Rubber, Basic alloys and metals, Machinery and machine tools, Transport equipment, Miscellaneous Industries	Food products, Tobacco & Beverages, Textiles, Other textiles, Rubber, Chemicals, Non-metalic minerals, Basic alloys, Electrical machinery, Miscellaneous Industries, Repair services, All industries	Food products, Rubber, Machinery and machine tools, Electrical machinery	Textiles, Wool, Silk, & Sythetic textiles, paper&printing,Leather, Chemicals, Non-metallic minerals, Basic alloys, Metal products Machinery & machine tools Miscellaneous industries
(d) Lower Wage rates and lower labour productivity	Food products, Non-metallic minerals, Metal products All industries	-	Textiles, Other textiles, Paper and Printing, Chemicals, Transport equipment, Miscellaneous industries, Repair services, All industries	Food Products, Other textiles, Rubber, Electical machinery, Transport equipment

Table 5.5: Wage Productivity Relationship in certain categories of units in Kerala relative to other southern states (1978-79)

	ASIC	ASIS	DME	NDME+OAE
(a) High Wage rate and low labour productivity	-	paper and paper products, Transport equipment	Chemicals, Non metallic minerals, Basic alloys&metals	Other textiles Beverage and Tobacco
(b) Low wage rates & high labour productivity	-	-	-	
(c) High wage rates and high labour productivity	Textiles, Silk, Wool, Synthetic textiles, Other textiles, Wood & wood products, paper and paper products, Rubber products, Basic alloys & metals, Misc. industries	food products, cotton textiles, other textiles, Rubber products, Non-metallic mineral products Electical machinery, Repair services	Food products Beverages and Tobacco, Other textiles, Rubber products, machinery and machine tools, Miscellaneous industries Repair services Transport equipment	Cotton textiles, Silk, Wool and sythetic textiles, paper&paper products, non-metallic mineral prdts, metal prdts, machinery & machine tools, Miscellaneous industries Repair services
(d) High Wages rate and in between labour productivity	Chemicals, Machinery & machine tools,	Beverages & Tobacco, leather products, Machinery & machine tools Chemicals, Miscellaneous industries	Silk, Wool & Synthetic textiles, Wood and Wood products, Paper and paper products Metal products	
(e) Low wage rates and low labour productivity	Food products	Miscellaneous industries	-	
(f) Inbetween wage rates and in between labour productivity	Beverages & Tobacco, Metal products, Transport equipment Repair services	Wood products	Repair Services	Rubber products Electrical machinery Transport equipment
(g) in between wage rate high labour productivity	non-metallic minerals electrical machinery	-	Miscellaneous industries	wood products leather products Basic alloy and metals
(h) in between wage rate & and low labour productivity	-	-	Cotton textiles	Food products

Table 5.4 gives the summary of wage rates and partial labour productivity relationship relative to all-India and Table 5.5 gives it relative to the other southern states. In DME + OAE units 13 out of 18 industries showed higher wage rather than in India and only 5 industries showed lower wage rates. This implies that the higher wage rates in the NDME + OAE category is generally valid across the set of industries within the group and does not arise out of the influence of a few dominant industries. From a comparison of NDME +OAE units across the states given in table 5.5 we find that in 11 industries in Kerala the wage rate were the highest and seven industries it was somewhere in between and in no industry was it the lowest.

Coming to the DME units we find that 10 industries out of 17 showed higher wage rates than in all-India. Among the southern states (See Table 5.5) Kerala showed the highest wage rates in the industries and an in between wage rate in the rest.

In the ASI sample sector all 16 industries showed higher wage rate in Kerala as compared to all India. In comparison to the other states (See Table 5.5). 14 industries showed higher wage rate, one industry (wood and wood products) showed in between growth and only one industry showed lower wage rate.

Twelve industries out of 16 in Kerala showed the highest wage rates relative to India in the census sector. Though the average wage rate in ASIC in Kerala was lower than in India we find that majority of the industries showed higher wage rates. The lower average wage rate could be due to that the fact the industry groups which showed lower wage rates accounted for a larger proportion of employment in Kerala. A comparison with southern states from Table 5.5 shows that out of 16 industries 10

industries had the highest wage rate in Kerala five industries had in between growth rate and only in one industry (food products) was the wage rate the lowest.

The above analysis implies that the wage rates in all organisation categories in majority of the industries in Kerala was higher than all-India and other southern states.

We observe from Table 5.4 and 5.5 that labour productivity has been generally high. In the ASIC, ASIS and NDME + OAE a large number of industries did show higher partial labour productivity in Kerala relative to all-India. In the DME units however, majority of the industries showed lower partial labour productivity. A comparison of Kerala with the other southern states shows that in all organisational categories about one half the industries showed high partial labour productivity and the rest showed average partial labour productivity.

To make this analysis more systematic we have ranked the industries in each organisation/scalar category in all-India and southern states by wage rates and by partial productivity of labour. Thus the state with the highest wage rate in an industry say 2Ø-21 within an organisation category say NDME+OAE would be given a rank of five. Similarly, the states with lowest was given a rank of one. In this way ranks were given to all states covering every industry group, for each organisation category seperately. The average value of ranks of a state over industry group for each organisation category is reported seperately in Table 5.6. The same exercise is carried out for partial productivity of labour i.e. the ratio of value added to employment and reported in Table 5.6. Higher ranks mean higher comparative partial labour productivity. In working with ranks we

have made it possible to simultaneously compare across regions and ignore the industry pattern of employment (size of the industry).

Table:5.6 Average Rank of Wage rates(W/L)

	NDME + OAE	DME	ASIS	ASIC
Andhra Pradesh	1.5ØØ	2.316	1.737	1.944
India	3.474	3.842	3.158	3.211
Karnataka	2.833	2.474	2.833	3.ØØØ
Kerala	4.222	3.647	4.588	3.938
Tamil Nadu	2.789	2.579	2.579	2.474

From Table 5.6 it evident thta Kerala had the highest rank for all organisation categories among the southern states. Similarly, even in comparison to all-India its rank was higher in all organisation categories except in the DME. In other words, it means that Kerala had the high wages in many more industries than in any of the other regions in all organisation categories (except all-India in the DME category). When we compare the fact of highest rank in the ASIC sector with the fact that in ASIC sector the aggregate wage rate obtained is the lowest there is really no contradiction because in many industries in the ASIC Kerala had high wage rate but in a few dominant industries (food products) peculiar to Kerala it had low wage rates and it is the weight of these few industries which make the aggregate wage rate low. The competing regions with Kerala are Andhra Pradesh and Karnataka and both (particularly Andhra Pradesh) had significantly lower ranks. What is more intersting is that Tamil Nadu a metropoliton state had rank significantly lower than in Kerala. This observation is compatible with the new centres of

industrialisation in Tamil Nadu away from Madras such as, Coimbatore, Madurai, Trichinapalli which are competitive with respect to the secondary states namely Andhra Pradesh and Karnataka.

It is possible to make two counter arguements to the analysis above. Firstly as Subrahmanian and Pillai show that high wage rate industries in Kerala generally do have high partial labour productivities and so one could argue that the high wage rates in Kerala are being supported by higher labour productivity, need not imply that Kerala is being out competed by other regions on account of high wage rates. Secondly, the ranks do not take into account the industrial structure of Kerala and so are only a comparative measure of simple average of wage rates.

Table 5.7: Average Rank of Labour Productivity(L/V)

	NDME + OAE	DME	ASIS	ASIC
Andhra Pradesh	2.158	2.211	1.684	1.833
India	3.632	4.ØØØ	3.421	3.1Ø5
Karnataka	3.211	2.632	3.556	3.Ø56
Kerala	3.684	2.941	3.294	3.75Ø
Tamil Nadu	2.316	3.ØØØ	2.737	2.842

Table 5.7 above reveals that partial labour productivity has been generally high. In the NDME +OAE, ASIC categories it was the highest while in DME and ASIS category it was about average. Yet we do observe from Table 5.8 below that in Kerala the divergence of the ranks of wage rates and labour productivity is always negative and high through out, weakly suggesting

thereby that while part of the high wage rate in Kerala may be justified on account of high partial labour productivity much of it may not. However, we can do little else from this table.

Table 5.8: Rank Labour productivity(L/V) minus Rank Wage Rate(W/L)

	NDME + OAE	DME	ASIS	ASIC
Andhra Pradesh	Ø.658	-Ø.1Ø5	-Ø.Ø53	-Ø.11
India	Ø.158	Ø.158	Ø.263	-Ø.1Ø6
Karnataka	Ø.378	Ø.158	Ø.723	Ø.Ø56
Kerala	-Ø.538	-Ø.7Ø6	-1.294	-Ø.188
Tamil Nadu	-Ø.473	Ø.421	-Ø.158	Ø.368

Partial labour productivity is purely a ratio of value added to employees. It is not to be confused with marginal productivity of labour which is a meaningful concept within the paradigm of neo-classical economics. Value added to employee ratio depends on a host of other factors such as capital intensity, the technology, profitability, monopoly power etc. Hence the analysis above is extremely preliminary and only indicative.

Having looked in detail at one of important regional factor i.e. wage rate which has impact on the growth and diversification of the region we will now go on to a discussion of yet another regional factor -labour unrest.

Section III

Labour Unrest

In this section we use available data which bring out certain aspects of labour strife in Kerala and compare the situation in Kerala to that in other states. We have found it

useful to distinguish between metropolitan like states Maharashtra, Tamil Nadu and West Bengal and the non metropolitan states (secondary regions) namely Karnataka, Kerala, Gujarat and Andhra Pradesh. We know that diversification has been most in Gujarat Karnataka and Andhra Pradesh in that order. Growth has been relatively slow in Tamil Nadu, Maharashtra and Kerala and practically negligible in West Bengal. There are atlest three studies which seek to relate growth to conditions of labour unrest and its impact (Subrahmanian and Pillai (1986), Oommen (1979) and. T.Roy (1984). While T. Roy has sought to explain the stagnation of West Bengal in terms of regional factors wherein labour unrest was identified as the most important of the regional factors, Subrahmanian and Pillai in their study has drawn attention to the declining figures of number of disputes and man days lost in Kerala to suggest that the environment in Kerala in terms of labour unrest has improved and hence this factor could not have been a major underlying cause for Kerala's lack of diversification. On the other hand Oommen through a primary survey found that many entrepreneurs have shifted operations outside Kerala and that one of the important reasons, as given by the entrepreneurs has been the labour unrest in Kerala.

Subrahmanian and Pillai do not deny Oommen's findings regarding entrepreneurs attitudes but they argue that attitudes being psychological can continue to exist even after the objective conditions change. Here we will argue that the relationship between labour unrest and growth is fairly strong. Regions with high growth have little unrest whereas regions with lower growth have shown higher unrest. The absolute aspects of

labour unrest namely number of disputes, mandays lost and number of workers involved do not have much meaning in themselves but have to be weighted by appropriate denominators like size of factory the available man days etc. in order to make comparison across regions meaningful. Therefore to get a true picture we have constructed four indices.

(1) workers involved per dispute (wks/dis) - this would measure the size of the disputes. This is not a true relative measure because it depend much on the average size of factories.

(2) Mandays lost per dispute (mds/dis) - this would measure the severity of the dispute

(3) Mandays lost by ratio of factory employment to number of days scheduled to work - this measures the impact of disputes on the region. This measure is one that can be used to make a true comparison across regions since it measures the impact of labour strife relative to the size of the economy.

(4) Mandays lost per worker involved. This gives the duration of the dispute and in some sense reflects the quickeness with which disputes are resolved; lower rate's implies faster resolution of disputes.

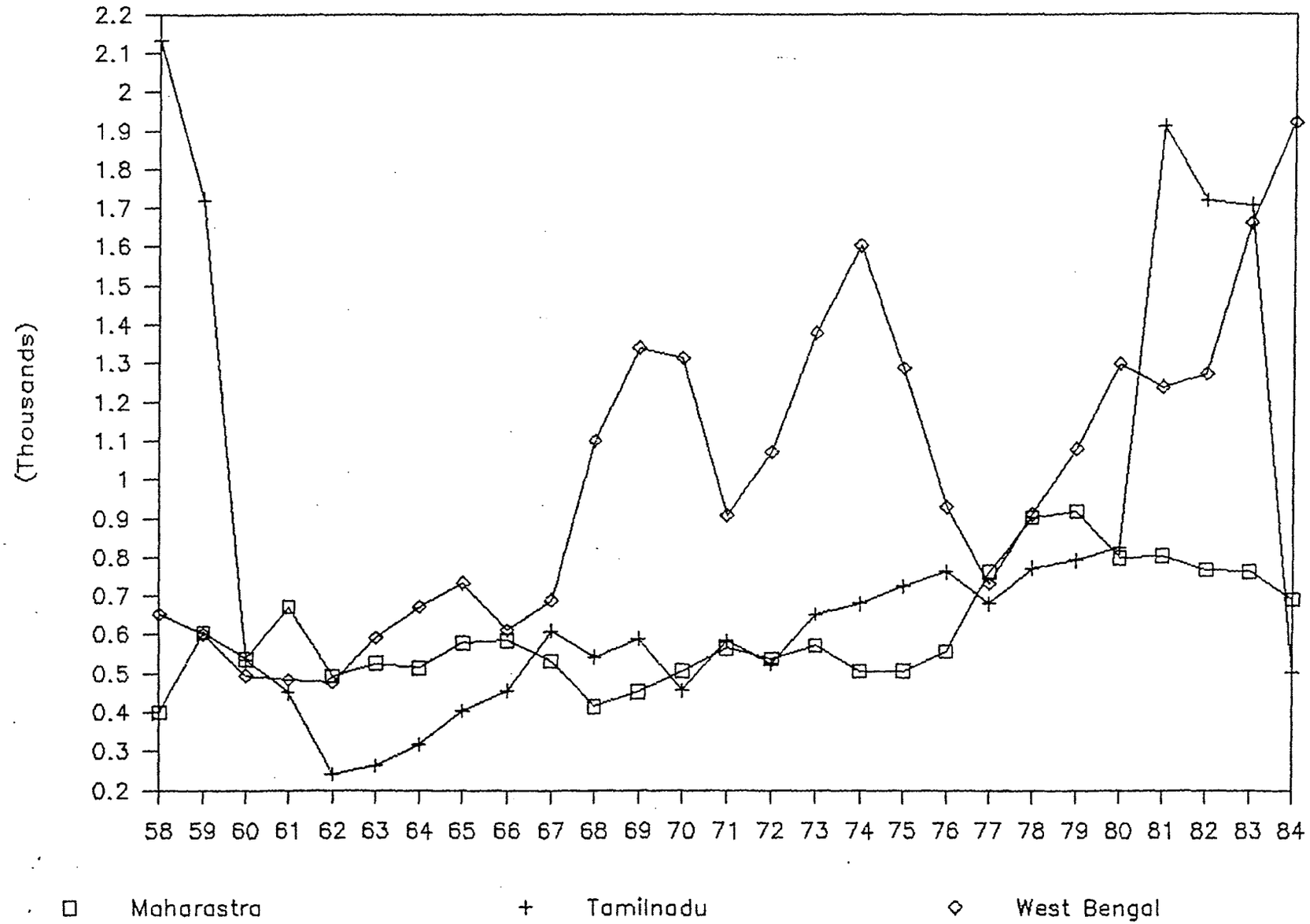
The major source of data for this exercise is the Labour Year Book.[13] The factory employment does not include the employment in plantations whereas number of disputes, number of mandays lost and number of workers involved includes those in the plantations also. Since the proportion of plantations in Kerala is high the figures for Kerala may be overestimates. Therefore, we also carried out the exercise after subtracting from the total, disputes, number of mandays lost and number of workers involved, pertaining to the plantations in Kerala. But it was found that even after making the adjustment the measure for Kerala declined by only about 20 per cent which as we shall see is not significant and only marginally effects the conclusions drawn on the basis of unadjusted figures.

These indices have been plotted using three year moving averages becaue given the nature of the phenomena there are sharp year to year variations and what interest us is not the variation but the underlying trend. .The indices for the states with metropolitan regions have been plotted together and those for the secondary regions seperately. This has been done because the metropolitan regions with their large and well diversified industrial base and with history of labour movement which goes further back in time can be expected to show a different pattern from the secondary regions. Graph for size of disputes (5.1a) shows that size of disputes in West Bengal has been the highest. Only between 1981 and 1983 does the size of dispute show a steep rise in Tamil Nadu. Among the secondary regions (see graph 5.2b) Karnataka and Kerala showed wide variation. The size of dispute in Kerala during the large part of our study was highest except during 1974-1977 when there was a sharp decline and during 1981-1984 when the size of dispute in Karnataka showed rise due to disputes in the public sector. However this index as we mentioned earlier depends on the averge size of factory. Therefore this index is not particularly meaningful.

The graph for severeity of disputes (no mandays lost per dispute) (graph 5.2a) shows that the severity of disputes is highest in West Bengal for large part of our study except between 1982-84 when Maharashtra showed a steep rise in this measure. This is entirely due to the textile strike in Bombay which lasted for over 1 1/2 years. Among the secondary regions (See graph 5.2b) the disputes in Kerala were the most severe except during 1976-78 and 1982-84 when Karnataka showed a greater severity of dispute, which again was due to rather special case of a general

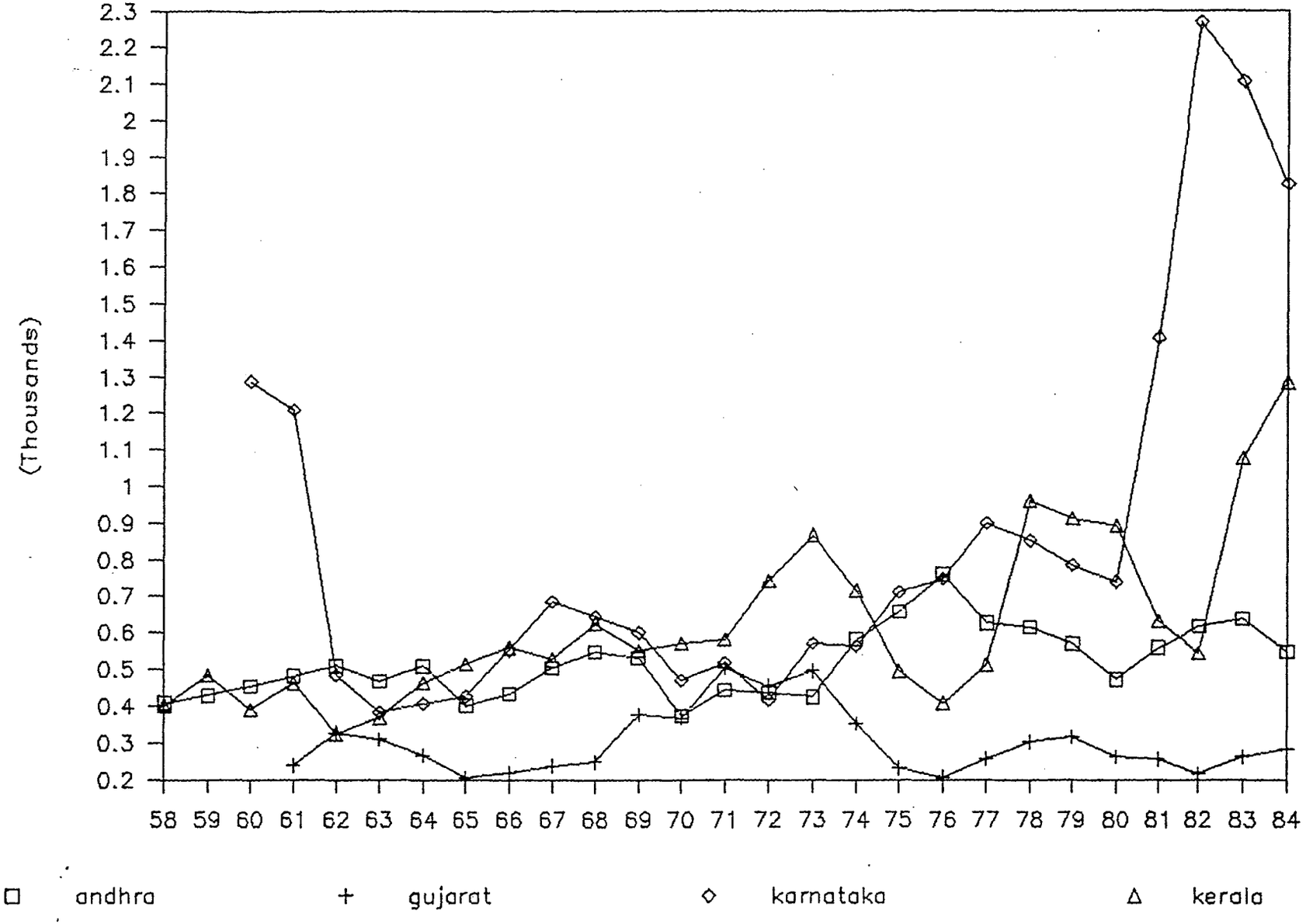
Size of Dispute (wks/dis)

GRAPH 5.1



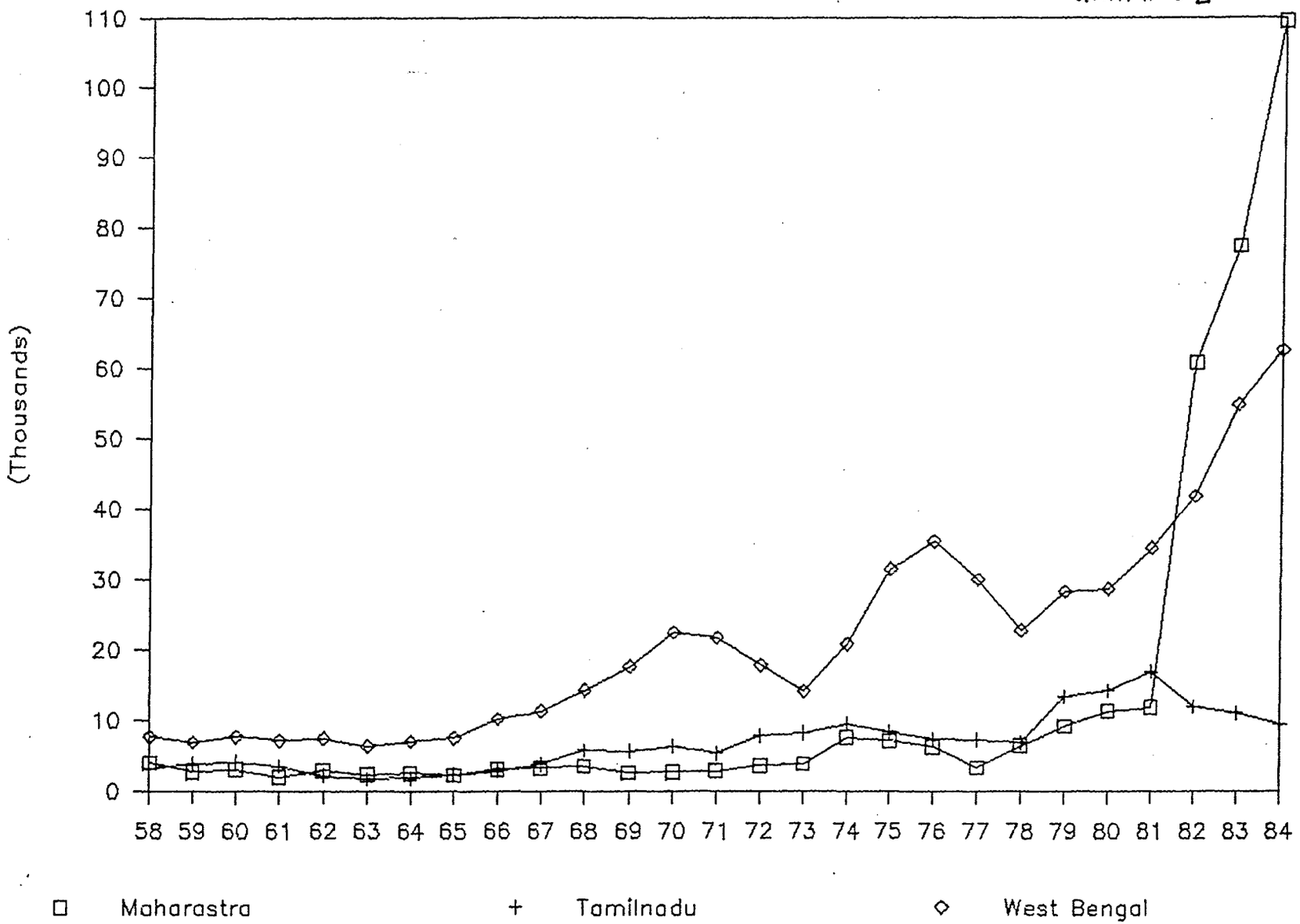
Size of Dispute (wks/dis)

GRAPH 5.1a



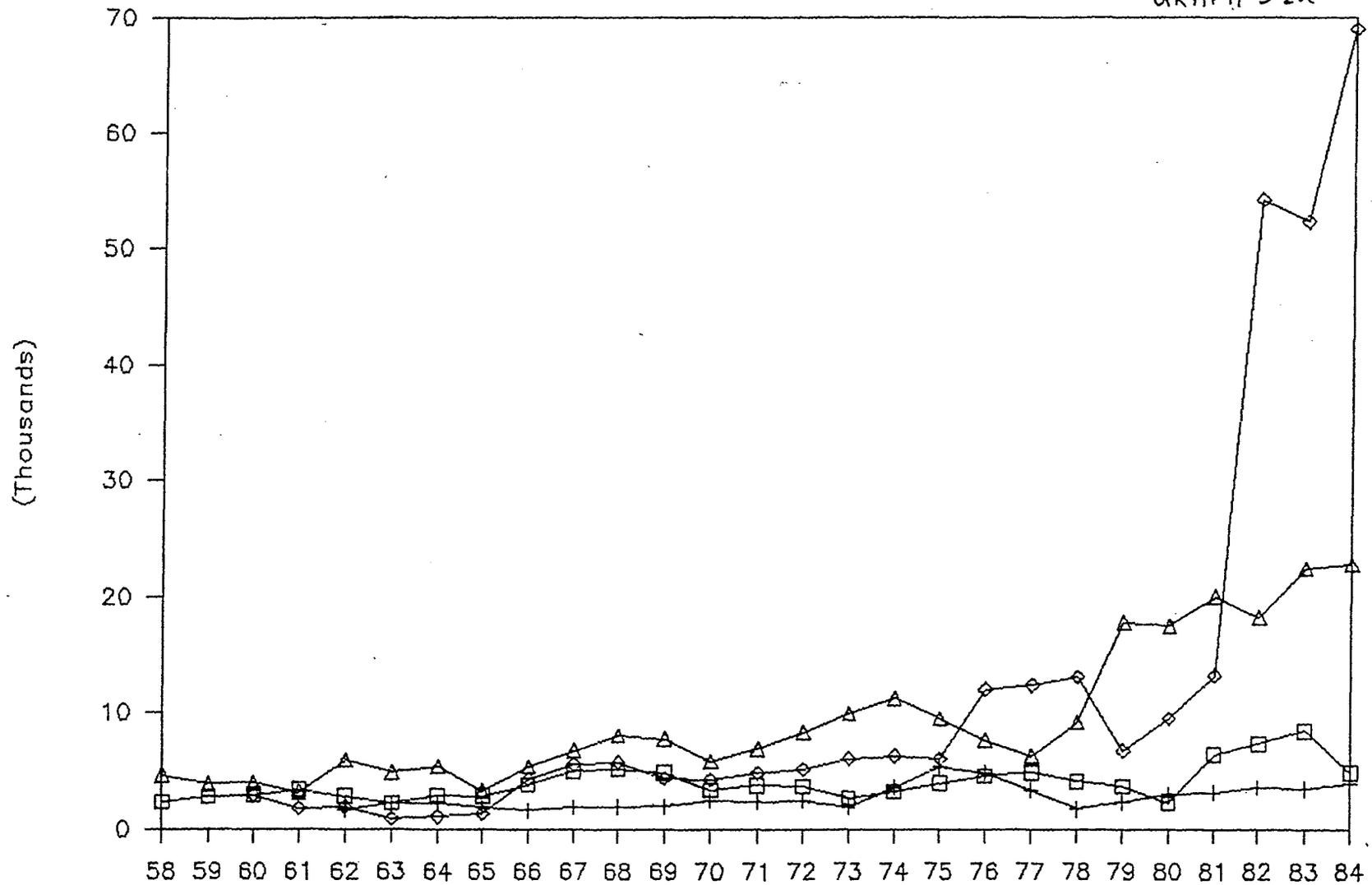
Severity of Dispute (mds/dis)

GRAPH 5.2



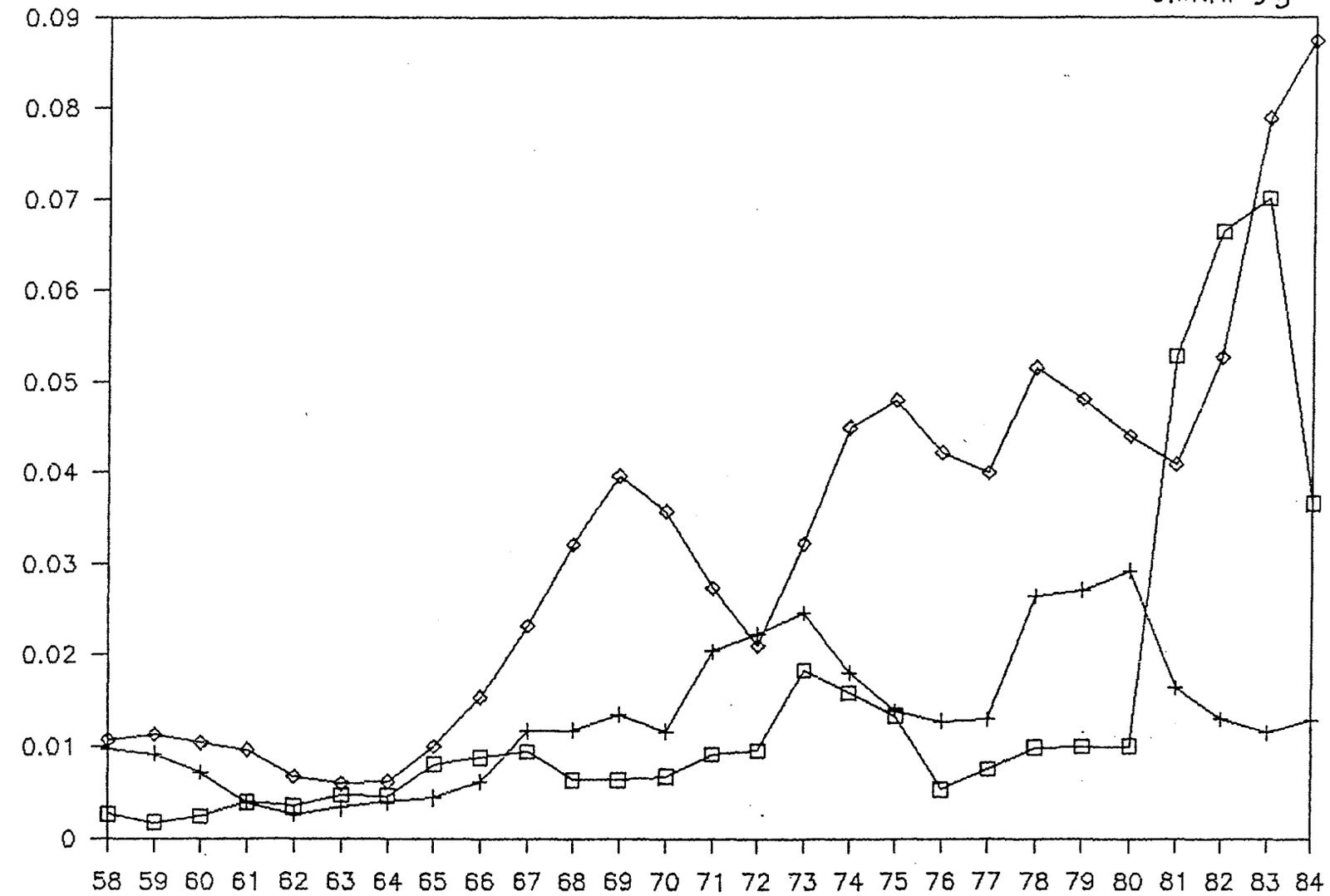
Severity of dispute (md/dis)

GRAPH 5.2a



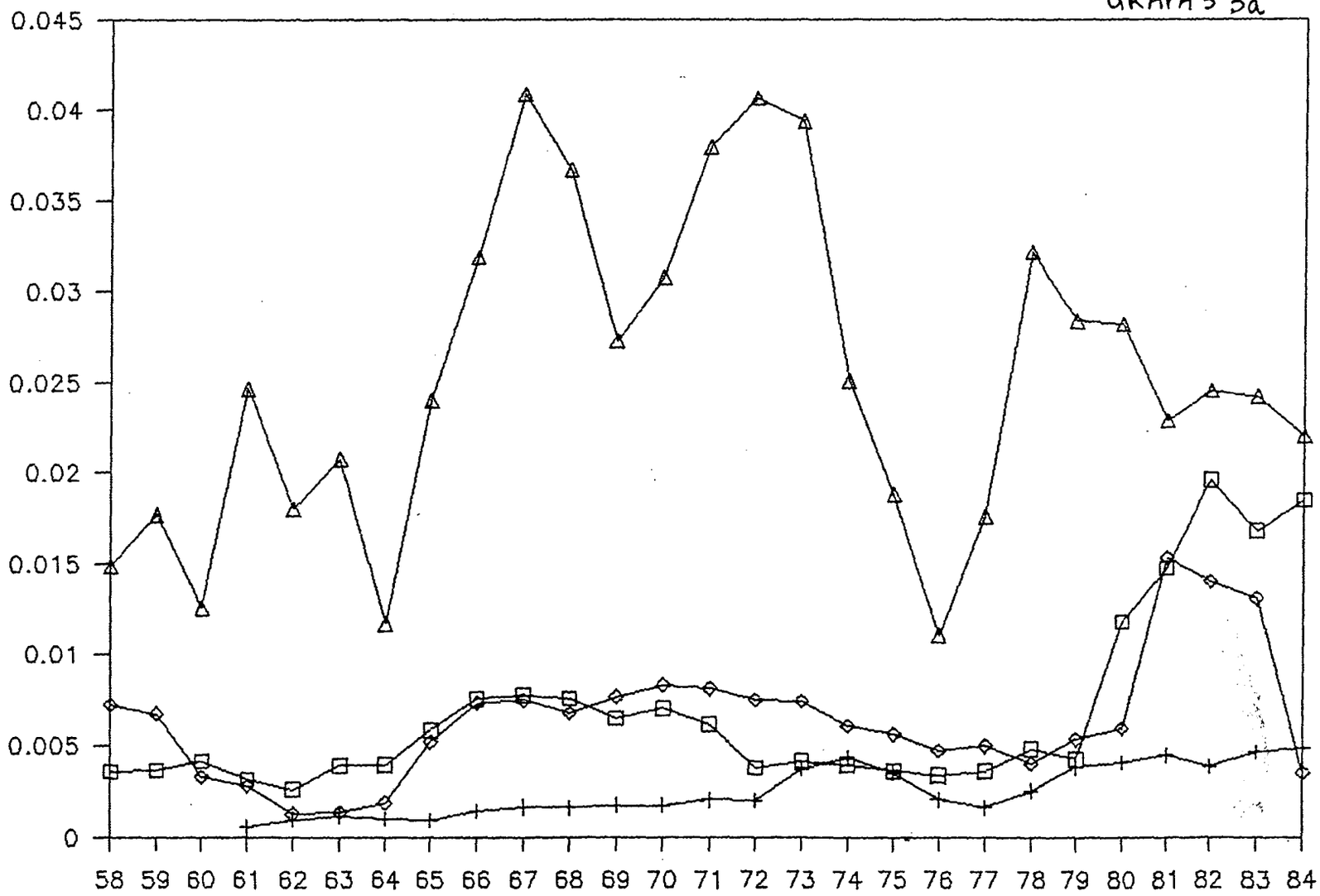
Impact of Dispute (md/ed)

GRAPH 5.3



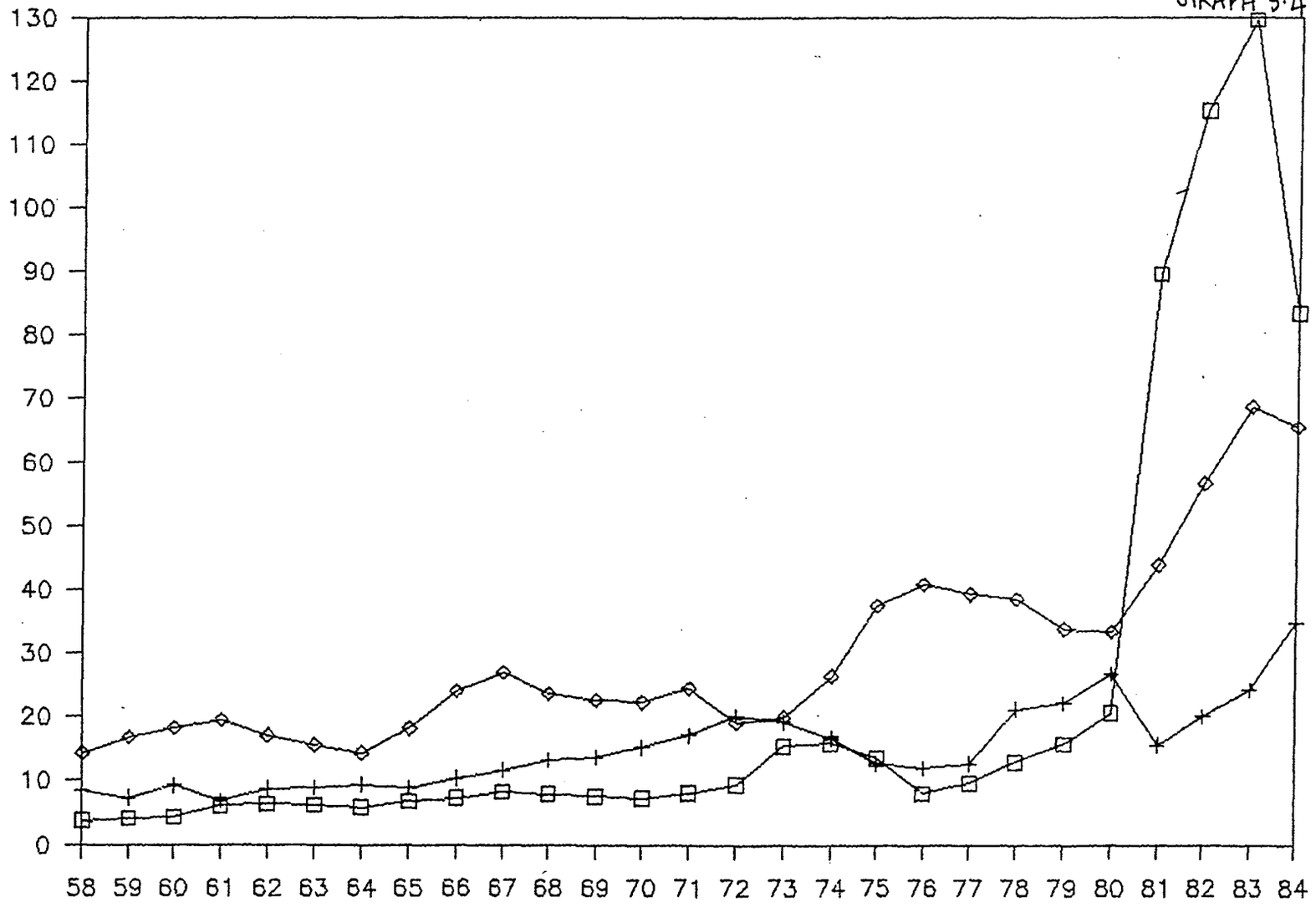
Impact of Disputes (md/ed)

GRAPH 5.3a



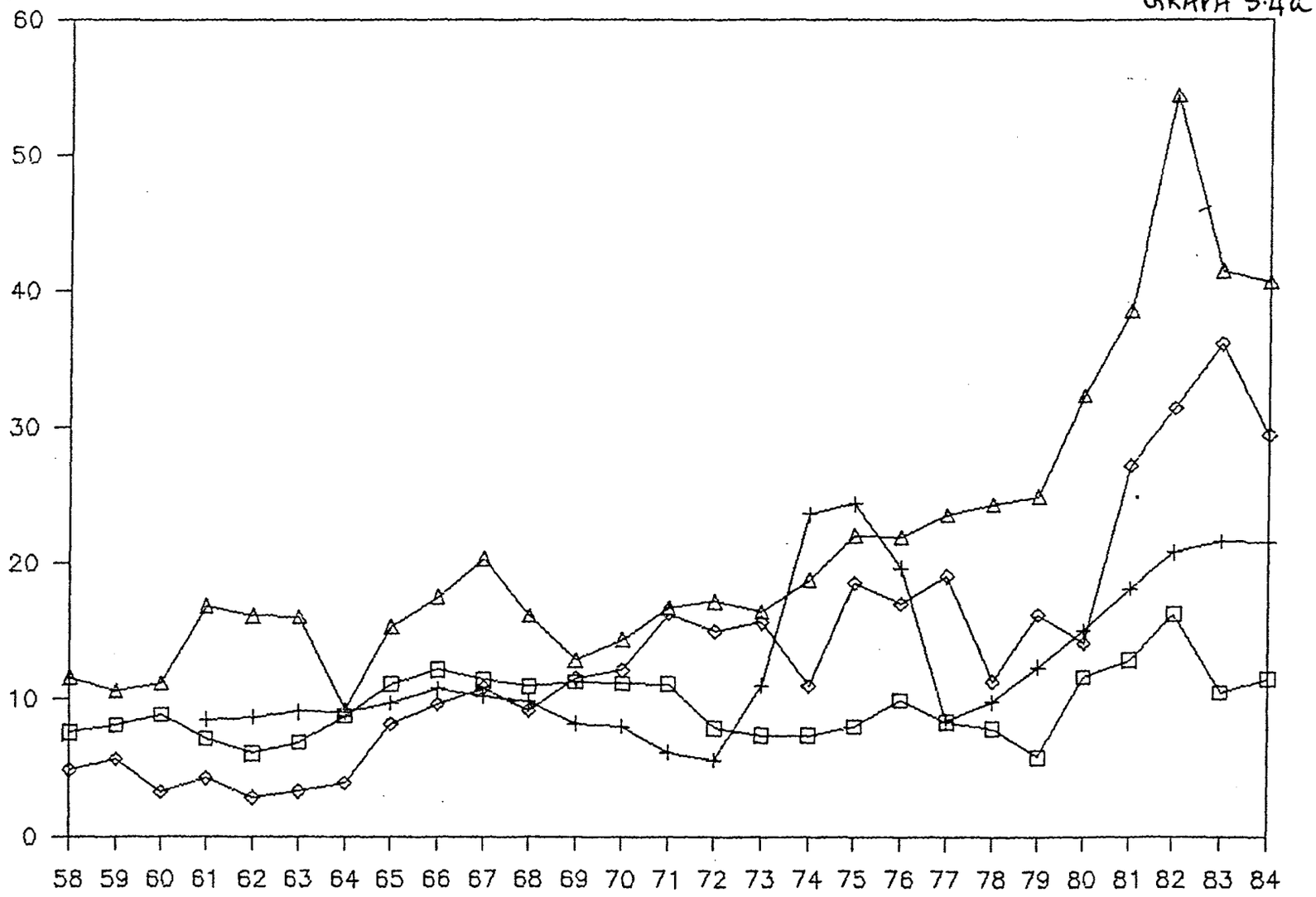
Mandays lost per worker Involved(md/wk)

GRAPH 5.4



Mandays lost per involved worker(md/wk)

GRAPH 5.4a



strike among public sector employees.

Impact of disputes (ratio of man days lost/factory employment x number of days scheduled to work) has been felt most in West Bengal which for major part of our study shows the highest value (See Graph 5.3a). We also see a steady rise in the index between 1969-71, 1975-76 and 1978-8Ø. Only in two years 1981 and 1982 which were the years of textile strike in Bombay does Maharashtra show a higher impact of disputes. Looking at grpah 5.3b for the secondary regions we find that Kerala stands apart from the other states. There was a fall during 1972-1975 in Kerala bùt even during this period it was the highest among the secondary regions. Even, during the period 198Ø to 1982 when karnataka showed a rise in the impact of disputes due to the disputes in the public sector Kerala showed an even higher impact of disputes. In kerala the index averaged around Ø.Ø3. The only other states where it was higher were West Bengal where it averaged around Ø.Ø5 throughout the period, in Tamil Nadu during 197Ø-72 and 1978-8Ø when it was around Ø.Ø5 and in Maharashtra during the textile strikes in 1981-82 when it was around Ø.Ø7. In Kerala we find that impact of disputes is comparable with that in the industrialised regions around the metropolitan cities and is very high when compared to the secondary regions.

Graph 5.4a gives the duration of disputes (mandays lost per worker involved) in Maharashtra, Tamil Nadu and West Bengal. The graph shows that the duration of disputes has been the highest in West Bengal till 198Ø and it also showed a steady rise during this period. Maharashtra showed a higher duration of disputed after 198Ø, this again is due to the textile strike in Bombay. The average duration of disputes is around 2Ø days for

Maharashtra and Tamil Nadu and in West Bengal is was around 30 days. The graph for secondary regions (5.4b) shows that Kerala had the longest duration of disputes among these regions. Even during the eighties when there was a general dispute in the public sector in Karnataka, Kerala still showed the longest duration of disputes. Except in two year 1974 and 1975 when Gujarat showed a longer duration of disputes throughout the period of our study Kerala showed the longest duration of dispute. The duration of disputes averaged around 20 days whereas in the other secondary regions it was less than 15 days. The value of the index in kerala was comparable to that in the highly industrialised states like Maharashtra and West Bengal.

Summarising the discussion thus far we will particularly draw attention to mandays lost relative to proportion of mandays available and to the duration of dispute as most appropriate indicators of industrial unrest in a inter-regional comparison. Table 5.9 and 5.10 above gives five year averages of these measures.

As one can clearly see in the fastest growing states, the impact of disputes and duration of disputes have been very low. In Bengal, the stagnant region it has been the highest. In other states that have grown sluggishly it has been somewhere in between i.e. Maharashtra, Tamil Nadu and Kerala and in Gujarat, Karnataka and Andhra Pradesh the fastest growing regions it has been the lowest. Thus we will contend that regional factors and particularly labour unrest have been a major impediment in the diversification of Kerala's industrial base. This conclusion is reinforced when we also recall that in the fifties and the sixties when the opportunity for divresification

Table 5.9: Ratio of Mandays lost to mandays scheduled to work on account of industrial dispute (percent)

Year	Andhra Pradesh	Gujarat*	Karna-taka	Kerala	Mahara-shtra	Tamil Nadu	West Bengal
1951-57	-	-	-	-	-	-	Ø.73
1958-62	Ø.33	Ø.Ø5*	Ø.45*	2.Ø7	Ø.42	Ø.62	1.ØØ
1962-67	Ø.63	Ø.13	Ø.49	2.31	Ø.72	Ø.54	1.16
1968-72	Ø.58	Ø.16	Ø.74	3.68	Ø.77	1.75	3.Ø9
1973-77	Ø.36	Ø.3Ø	Ø.56	2.Ø4	1.18	1.59	4.13
1978-84	1.29	Ø.41	Ø.89	2.62	3.6Ø	1.95	5.96
1958-7Ø	Ø.5Ø	Ø.12**	Ø.54**	2.32	Ø.57	Ø.76	1.75
1971-84	Ø.8Ø	Ø.35	Ø.74	2.77	2.36	1.18	4.71
1958-84	Ø.69	Ø.24#	Ø.65#	2.55	1.49	1.34	3.28

Note: * Average is for 196Ø-1962
** Average is for 196Ø-197Ø
# average is for 196Ø-1984

Source: Computed from Indian Labour YearBook, Ministry of Labour, Various issues.

Table 5.1Ø: Mandays lost per worker involved on account of disputes (number of days)

Year	Andhra Pradesh	Gujarat	Karna-taka	Kerala	Maha-rashtra	Tamil Nadu	West Bengal
1951-57	-	-	-	-	-	-	-
1958-62	7.32	8.54*	4.48*	14.74	5.14	7.4Ø	17.35
1963-67	1Ø.47	1Ø.14	7.Ø7	14.63	6.99	9.83	2Ø.Ø3
1968-72	1Ø.64	7.Ø2	13.67	15.57	7.84	15.78	22.56
1973-77	8.Ø6	17.56	14.93	19.15	11.95	14.72	31.96
1978-84	1Ø.49	16.92	23.77	36.1Ø	66.67	23.83	48.99
1958-7Ø	9.44	9.18**	7.1Ø**	14.27	6.4Ø	9.78	19.59
1971-84	9.51	15.47	19.63	27.69	38.79	19.88	39.13
1958-84	9.48	12.7Ø#	13.6Ø#	21.23	23.19	15.Ø2	29.72

Notes: * average is for 196Ø-1962
** average is for 196Ø-197Ø
# average is for 196Ø-1984

Source: Computed from Indian Labour Year Book, Ministry of Labour, Various issues

existed the condition of labour unrest were particularly severe in Kerala especially so when compared to regions like Karnataka and Andhra Pradesh which were able to diversify.

Section IV

Regional Factors: An Overview

Regional factors we find better explains the difference in growth between Kerala and other southern states and all-India.
We argued that there was no dearth in skilled labour. In fact there is an outflow of skilled labour from Kerala to other regions in India and outside. We also stated that lack of entrepreneurs and possible differences in terms of natural endowments cannot be a complete explanation to lack of growth in Kerala. Public investment in Kerala in 1981 we found was quite in keeping with its share in total population and comparable to public investment in other southern states.

But, Kerala has a disadvantage in terms of availablity of land and land prices which is an important factor in the spatial spread of industries. Though accurate evidence on land prices is not available we can say that land prices in Kerala are higher than other southern regions. Hence there is no way in which Kerala can attract industries by offering cheap and large areas of land to industries.

An even more important factor which has had an impact on the industrial growth of Kerala are wage rates. Our analysis show that the average wage rate in all organisational categories except ASI census sector showed higher wage rates as compared to other southern states. The lower wage rates in ASI census sector was accounted for by one industry (food products). Majority of the industries showed higher wage rates. In comparison to the all-India level DME also showed lower wage

Analysis of labour unrest in Kerala found that the imapact of disputes as well as the duration of disputes has been the highest in Kerala as compared to other secondary regions and comparable to that in metropolitan regions.

From the dicussion it is evident that regional factors such as wage rates and labour unrest more than structural factors explain the lack of diversification and growth of Kerala.

Notes and References

1. A.K,Baggchi(1972)
2. ibid
3. ibid
4. In posing the question this way we are not claiming that there has been major diversification since independence (Y.K Alagh 1972).But what we are trying to say is that there was some diversification and that even this diversification has been uneven. Our central problem is not the quantum of diversification as much as its uneveness spatially.
5. Y.K,Alagh (1972)
6. Alexander Gerchenkron (1959)
7. R.Nagaraj: Subcontracting in Manufacturing Industries: The Bangalore experience, Centre for Development Studies,Phd thesis(forthcoming)
8. State Plannig Board,Trivandrum(1984)
9. K,K,Subrahmanian and P.Mohanan Pillai (1986)
10. Alan Kreuger and Lawrence Summers(1986)
11. M.A,Oommem(1979)
12. The two are not the same because highwage rates neednot necessarily act against industrailisation if many other factors are conducive as is shown in the case of Punjab in India, a point to which we shall refer latter in the discussion.
13. Labour Year Book, Ministry of Labour, Government of India,various issues.

Chapter VI

SUMMARY AND CONCLUSIONS

A brief review of literature in Indian industrialisation process revealed that there are regional differences in the pattern of output and employment. The reasons for this difference are given in terms of diverse hypotheses dealing with differences in industrial and organisational structure, region-specific factors etc. This study is an attempt to explore the structural vs regional factors in the context of Kerala. To the extent possible we have resorted to a comparitive framework incorporating the experience of other southern states and all-India.

To facilitate this, we have used several data sources the major ones being the National Account Statistics and the Estimates of State Domestic Product which gives data on value added for the broad sector in the economy, the Annual Survey of industries which interalia, gives fixed capital, employment and value added in the factory sector at three digit level of disaggregation, the Census of India, General Economic Tables which gives figures on employment in the manufacturing sector at three digit level of disaggregation, the report on the survey of Directory Manufacturing Establishment, 1978-79 and the report on the survey of Non-Directory Manufacturing Establishment and Own Account Enterprises 1978-79. We have combined these sources of data so as to get as complete a picture of the growth of manufacturing sector in Kerala.

From the analysis of data on State Domestic Product we

found that growth pattern of industrial output in Kerala was peculiar, unlike that of other southern states and all-India. The periods of growth and recession in Kerala had no relation to the periods of growth and recession of Indian industrial economy. In other words the industrial sector in Kerala did not seem to be articulated with the Indian industrial structure. When comparing Kerala with other southern states we found that in the 196Ø's its level of industrialisation was comparable to that of India, though it ranked below that of Karnataka and Tamil Nadu and above that of Andhra Pradesh. Yet its growth pattern hardly followed that of the fast growing states (Karnataka and Andhra) or the more static states (Tamil Nadu). Therefore Kerala's growth was found to be exceptional and contrasting with the phenomena of high growth rate for lowly industrialised regions and moderate to low growth rate for highly industrialised regions. The data from ASI also confirmed this.

The growth of manufacturing employment in Kerala was the slowest compared to all-India and other southern states. However, the figures for value added showed that Kerala had a growth rate which was above the average for all-India but below that in the other southern states. This was true in the case of both the census and sample sector of the ASI. Further, we also found that though Kerala showed an overall positive growth in terms of value added and employment there was a slowing down in the growth after the seventies in the manufacturing sector. The industrywise analysis showed the this phenomena was not restricted to a specific industry or a group of industries but was applicable across the board in the manufacturing sector.

How did the manufacturing sector in Kerala perform in

terms of productivity ? An analysis in this direction was found important to pinpoint the process pulling down the parametres.To start with we studied the structural ratio in the manufacturing sector in Kerala in the factory sector as a whole and in the census and sample sector seperately. It was found that capital productivity showed a consistent decline whereas labour productivity and capital intensity showed a steady rise in the factory sector. The census sector also followed a similar pattern. However, all three ratios showed positive growth in the sanple sector.

The total factor productivity growth (TFPG) was negative in the factory sector during the period 1961-82. The seventies saw a declining trend in TFPG in the factory sector. A similar trend was seen in the census as well as the sample sectors suggesting a sluggish growth in TFP in Kerala. Decomposition of the growth in value added into that contributed by labour, capital and TFP revealed that the contribution of TFP was negative in the factory sector as a whole. The contribution of capital was the highest. The census sector followed a similar pattern. The sample sector showed a pattern of rising contribution of capital and labour and a declining trend in the contribution of TFP. However it could not exert an ameliorative impact on the industry sector as a whole.

This led us to study the structure of' the manufacturing sector in terms of employment. An analysis of Census data revealed that the growth rate in employment was less than all-India level. The structure of Kerala's industrial economy presented a paradox. Given its poor growth in employment and moderate growth in value added under Dennis Anderson schema of

industrialisation one expected to find a higher proportion of employment in the lower size categories i.e. household units. However in Kerala we found that the proportion of employment in household sector was much less than in the other southern states and all-India. Further, the employment in household showed a decline during the period 1961-1981. The decline in Kerala was steeper than in all-India. The data also suggested that the structure in Kerala was perhaps a_little more advanced than even Tamil Nadu, a metropolitan region even earlier to 1960. Kerala was well in the end of phase II of declining household and growing small sector in terms of Dennis Anderson's typologies. One would have expected Kerala to show a faster growth in value added and employment. But this was not found to be so.The large factories and the intervening 'middle' or 'small' sector was quite different from that in Andhra Pradesh, Karnataka and all-India. In fact, the decline in absolute number over time in household units was not compensated by growth in other categories of units within the manufacturing sector. The non household employment in Kerala grew at a slower pace when compared to all-India. Within the non factory sector we found that in Kerala the share of Directory Manufacturing Establishments which constitute the modern small sector was low unlike that in Tamilnadu. In Kerala we see a preponderance of the Non Directory Manufacturing Establishments and Own Account Enterprises.

Analysis of the industrywise pattern showed that the decline in household employment was seen in majority of the industries in all-India and Kerala. This decline was compensated by a growth in large number of industries in the small sector at all-India. In Kerala, however, the decline was compensated by a

few industries.

What explains this secular decline? We have tried to explain this by taking the divergence of Kerala's growth from that of all- India in terms of employment and decomposing the same into 'structural' and 'regional factors. The decomposition was carried out with a 2 digit level of disaggregation and over the three organisations categories (size categories) seperately and together. We have found that the lower growth rate in employment was more than accounted for by 'regional' factors.

To the extent that such a decomposition exercise lumps both the purely regional factors and factors which arise out of location of new industries we were cautious not to conclude that it is the regional factors that have been important. The factors arising out location of industries is not easily decomposable. The thesis that we put forth is this: while structural factors do determine the pace of growth, there are periods during which opportunities to broaden base the structure stand to miss due to some constraining factors specific to the region. It is to the extent that Kerala had missed such opportunities that the lop-sided (specialised) structure continued, and restricted the pace of further growth in the manufacturing sector.

Unlike Kerala, secondary regions like Andhra Pradesh and Karnataka had shown dynamism in growth. This difference we have sought to explain in terms of regional factors. The regional factors taken up for detailed study were wage rates and labour disputes. The wages rates vary across organisational categories. Examining the wage rate in the manufacturing sector in Kerala we found, that the average wage rates were higher than in the other states in all organisational (scalar) categories except the ASI

census sector. However, the low average wage rate in the census sector was accounted for by one industry i.e. food products. All other industries showed higher wage rates relative to all-India and other southern states. In the ASI sample sector and Non-Directory Manufacturing Establishment and Own Account Enterprises wage rates in Kerala were the highest. In Directory Management Establishments the wage rates in Kerala were lower than all-India but was the highest among the southern states. This pattern was seen in a large number of industries.

However, we observed that labour productivity has been generally high. In Annual Survey of Industries Census, Annual Survey of Industries Sector and Non-Directory Manufacturing Establishment and Own Account Enterprise a large number of industries showed high productivity of labour. Only in the Directory Manufacturing Establishment category did majority of the industry showed lower labour productivity in Kerala.

We ranked the industries in each organisation category in all-India and southern states by wage rates and by labour of labour. Kerala had the highest rank for all organisation category among all southern states. Even in comparison to all-India its rank was the highest in all organisation- categories except in the Directory Manufacturing Establishment. The ranks for labour productivity was the highest for Non-Directory Manufacturing Establishment Own Account Enterprise and Annual Survey of Industries (census sector) and it was inbetween in the Annual Survey of Industries (sample sector) and Directory Manufacturing Establishment category. Since, value added per employee depends on a host of other factors we may say that the analysis is only preliminary and indicative.

It is possible that the impact of labour unrest unlike what many scholars believe, but in keeping with entrepreneurs and policy makers' perspection, have been quite high in Kerala. Thus we find that the duration of disputes in Kerala is perhaps higher than in Maharashtra and Tamil Nadu and somewhat lower than in West Bengal which are all metropoliton states. On the other hand, in secondary regions like Andhra Pradesh, Karnataka and Gujarat it is much lower than in Kerala. The same is also true with the impact of disputes i.e. mandays lost as a proportion of mandays worked.

We have thus looked at certain aspects of growth and organisation structure in the manufacturing sector in Kerala relative to all-India and other southern states. We have also seen how regional factors such as wage rates and labour disputes have been constraining the industrial growth process of Kerala.There are aspects like industry agriculture linkage, demand factors and policy of the government which we have not dealt with in our study. Indeed, major trends we observed in our study cannot by itself be taken as a basis for policy prescription. However, these are very important and deserve careful consideration in drawing up any meaningful policy framework for accelerating the growth process of industrial development in Kerala.

Appendix I

Data base and Limitations

In this note we will discuss the data base for the second and much of the third chapter and their major limitations. The discussion in this note is restricted to the Annual survey of Industries (ASI). The National accounts Statistics (NAS) and state domestic products (SDP).

The major source of industrial data is the Annual survey of Industries (ASI) published by the Central Statistical Organisation (CSO). ASI covers all factories registered under 2m(i) and 2m(ii) of the factories Act 1948. This includes all factories employing 1Ø or more workers with power and those employing 2Ø or more workers without power. The factories are further divided into census and non census (sample) factories. Factories employing 5Ø or more workers and using power come under the census part and the remaining factories come under the non census part. ASI gives information inter alia on (i) number of factories (2) employment and earnings (3) capital stock and investment (4) input, output and value added.

A major limitation of ASI is it that excludes the entire unregistered sector. This includes the household and non-household non-factory units. The data regarding these units are limited and are available only for certain time points. The gaps in data are to a certain extent filled by independent surveys. The Directory of Manufacturing Establishment (DME) survey conducted between October 1978 - September 1979[1] gives us information on number of units, employment, earnings, capital stock, investment, input, output and value added for industry

group at three digit level of disaggregation for India and at two digit level of disaggregation for the various states. This includes all non-household non factory units employing 6-1Ø workers and having an annual turnover of Rs.1 lakh. A sample survey of the so called non directory manufacturing units and own acount enterprises was conducted as part of the 33nd round of the National Sample Survey during June 1978-July 1979.[2] All units which were not covered in the DME survey were included in this. The industrywise data will enable us to see what proportion of small units are small factories.[3] and what proportion are non factories. The trend observed in the small factories can better be understood by looking at the data for small units. In another note we take up the discussion on these sources of data.

Despite the limitations of ASI, which makes inter temporal comparison difficult, we have used this data with the necessary adjustments. A minor difficulty arises from the change in the reference period for the data collected. ASI 1959 to 1965 uses calander year as the accounting year, after which the accounting year was taken to be the financial year. Accounting year for most factories is the calander year. No adjustment have been made and for convenience, the time series are taken to refer to calander year,throughout the period of study.

A cumbersome problem arises from the different industrial classification used overtime. Prior to 1971 the census factories were classified according to the ASI classification while the Labour bureau classification was adopted to classify industries in the non census sector. The ASI classification had 22 major groups, 57 minor group and 24Ø sub groups, while the labour bureau classification was less detailed and had only 24 major

groups and 5Ø minor groups. The National Industries classification (NIC) 197Ø is used from 1973 for classifying industries. The NIC has 22 major groups and 18Ø minor groups. It is possible aggregate disaggregated data. We have reclassified the industry on the basis of NIC to make the classification tally. Hence we have aggregated a number of relevant industries for the purpose of reclassifying the industries.[4]

There is a problem which arises when CSO updates ASI provisional results or summary results. CSO refers certain schedules back to the field after having tabulated them in their provisional results. Sometimes they are corrected on the basis of 'judgement'. Moreover the schedules that arrive late are 'incorporated'. These change the data from provisional results to the final results. Yet apparently CSO doesnot update all variables. For instance, while total emoluments and number of employees are updated, the wages to workers and number of workers are not. These upset the structural ratios somewhat. It was not possible to use the ASI of the same vintage final results since many of them were not available. This problem of different vintages being used across years can be ignored for all India and states data at the aggregate level. For the data at the disaggregate level for Kerala, the difference in the vintage could prove some problem.

In the census sector (before 1973-74) if any state has less than three units in any industry group the values are not given separately but it is clubbed with the value for 'other states'.[5] The number of units in the state is taken as the basis for distributing the values proportionately. This exercise could

be done only upto 1971. For 1973 the number units in each states included in other states was not given. In this case we assumed that number of units in 1973 is the same as that for 1971.[6] Unless this adjustment is made the figures for 1973 would be gross underestimates in the case of Kerala.

The census factories are completely enumerated. The results for the census sector are not corrected for the non responding units. The coverage varies between 96%-98%, thus giving a downward bias to the aggregates. But to the extent that the coverage is always around 96% there is no great difficulty in carrying out trend analysis. But for the data for the states, some corrections have to be made when important large units were know to have not responded. The non census sector was covered on a sample bases till 197Ø. Appropriate blowing up factors were used to arrive at the estimates for the population. Since 197Ø all the census units and a large portion of the non census units were completely enumerated and the remaining non census units were enumerated every year in rotation so as to get a complete coverage in two years. Assumption is that all units are covered, hence no adjustemnt is made for the non-responding units. The coverage, therefore varies from year to year. Details on number of non-responding units and employment therein are available at the aggregate level. No details for specific industry groups are available so no adjustments can possibly be made for the industry wise non responding units in Kerala.

The frame consisting of basic list of the primary units for the purpose of survey are liable to change from year to year. For any particular ASI the list generally refers to the position at the end of the previous calender year. Census factories are

chosen from the list of factories on the basis of average employment and since employment figures fluctuate from year to year, appreciable number of factories covered in the ASI may be outside the census purview in the subsequent year. Despite this fact they continued to be included in the census framework thus increasing the number of census factories considerably. This occured over the ASI surveys from 1959 to 1966. From ASI 1966 onwards the method of selection was modified. In ASI 1966, 67 and 68 all factories which employed 50 or more workers without power in any of the three preceding years was listed in the census frame. The frame was revised every three years and this resulted in sharp fluctuations. Since the non census is the residual part, fluctuations are transmitted to this sector also which effects the characteristics of this sector severely.

From 1973-74 beedi manufacturing untis registered under the Beedi and Cigar Workers (Conditions and Employment) Act 1966 have been included in the survey. This act has been enforced in various states at different points of time. As such the coverage of the beedi units has been varying from survey to survey, thus preventing temporal comparison for the various characteristics relating to the major industry group 22. Since we are unable to make adjustments, we will in our study, deal with the industry group 226 (beedi manufacturing) in Kerala separately.

Besides the problem of coverage and comparison there are problems arising from coverting the ASI series to constant prices. All the values are given at current prices. To deflate the values at the aggregate level (all industries) for India nd Kerala and other states we have used the following indices. To deflate output and value added the wholesale price index for

manufactured goods has been units. For inputs we have used the series for whoelsale price index for all commodities. The industrial classification used in the wholesale price statistics does not tally with the ASI classification for certain industry group. For deflating output and value added in specific industry groups in Kerala we have used the wholesale price index for the specific industry group. For those industries for which the classification did not tally we had to construct an index. The index for each year was constructed by taking the sum of the weighted index of the major inputs to the industry and dividing it by the sum of the weights of the inputs.

$$\frac{WPI_1 W_1 + WPI_2 W_2 \ldots\ldots\ldots + WPI_n W_n}{W_1 + W_2 + \ldots\ldots\ldots + W_n}$$

where $WPI_1 W_1$, $WPI_2 W_2$ etc. are the weighted index of the inptus and W_1 W_2 etc. are the weights.

For deflating aggregate wages and emoluments in India and Kerala and other states we have used consumer price index for industrial workers. For wages and emoluments in specific industry groups in Kerala also we have used the same index. Capital stock too has been deflated. See Chapter 3 for a discussion on the method used.

Wherever the figures for depreciation is not available to deflate depreciation in the census and non census in Kerala and India and other states we have used the implicit deflator derived from the series on gross domestic fixed capital formation in manufacturing at constant and current prices which we constructed. This deflator has been used for deflating the

depreciation in various industry groups in Kerala.

Despite various limitations the ASI is the only source of information on registered factories in India giving time wise picture. We have no better choice but to use this source of information for our study.

Another source of data is the Estimates of State Domestic Product 1960-61 to 1983-84 (SDP) published by the CSO, as well as the National Accounts Statistics (NAS), the SDP estimates being only a systematic collation of the data already available in the various issues of the NAS.

The Net domestic product (NDP) at factor cost at current and constant prices by broad industry of origin are available. The break up into registered and unregistered manufacturing is useful. The estimates for 1960-61 1970-71 are usually given at 1960-61 prices, whereas the estimates for 1970-71 - 1982-83 are given at 1970-71 prices. They have been converted to a single series by using the implicit deflators obtained for the values of the seperate series for the common years.

The registered sector covers all factories and as such pertains to the ASI factory sector. It is from the ASI that the estimates for the registered sectors are obtained mainly through adjustments made for non responding factories of the ASI. The estimation of value added in the unregistered sector is a more complex task, wherein, population, workforce estimates derived from the censuses, sample surveys and back ground surveys are used.

There are problem in the comparability of NDP across states.[1]. Yet we would say that since we are only interested in broad trends in the variables over the same states and in

approximate value of such indicators as per capita manufacturing value added across states the errors that may be there in the estimation, may not severely affect the analysis.

Notes and Reference

1.Survey on the Directory Manufacturing Establishment,summary results for the Central sample,1978-79,Central Statistical Organisation.

2.Report of the sample survey of unorganised manufacture:Non Directory Manufacturing Establishments and Own Account Enterprises,National sample survey,33rd round,July1978-June1979.

3.By small factories we mean those factories registered under Factories Act 1948 and employing 10-50 workers with power or 20-100 workers without power.

4.For classification used see Appendix 11

5.Other states includes all states which have less than three units in a particular industry group.

6.We have taken 1971 because there was no survey in 1972.

7.Page xix,Estimates of State Domestic Product,(1985)

Appendix II

Industry Classification used in our study

Sl. No.	Industry Code		Description
1	2Ø2		Canning and preserving of fish and vegetables
2	2Ø3		Canning preserving for fish and other seafoods
3	2Ø4		Crain mill products
4	212		Tea Processing
5	213		Coffee curing and roasting
6	214		Cashewnut Processing
7	219	included 212,213,214	Miscellaneous Food Products
8	226		Beedi manufacturing
9	23Ø	includes 231 cotton, spinning shrinking, finishing of cotton textiles the mills 234 Production of khadi 235 weaving and finishing of cotton in handloom other than khadi. 236 weaving and finishing of cotton textiles in power terms	Cotton and other textiles
	26Ø		Knitting mills
	268		Manufacturing of coir and coir products
12	27Ø	includes 27Ø manu plywood and their products 271 saving & plaining of food other than plywood	Manufacture of wood and wood products except furniture
13	276		Furniture and Fixture
14	28Ø		Manufacture of Pulp paper and paper

		board including newsprint	
15	285	284 printing & publishing of newspaper 285 printing & publishing of periodical, book, journal maps, etc. 289 printing and publishing of periodicals, books, journal, maps etc. 289 printing, publishing, and allied activities not elsewhere classified like envelope printing, picture post card printing etc.	Printing and publishing of newspaper, books and allied activities
16	300	300 tyres and tubes 302 manu of rubber products	Manufacture of Rubber and Rubber products
17	310	310 includes manu of basic industrial organic and inorganic chemical 311 manu of fertilizers and pesticides 313 manu of drugs and pharmaceuticals 314 manu of perfumes and cosmetics	Manufacture of chemicals
18	320		Manufacture of structural clay products
19	323		Manfuacture of china were and porcelainware
20	330	330 iron and steel industries 331 Foundaries for casting and forging iron and steel	Iron and Steel Industry
21	340	340 manu of fabricated metal products. Such as metal, tin plates, containers etc. 341 structural metal products	Metal products except machinery
22	360	360 Manu of electrical industry and apparatus and parts (electrical motors, transformers etc.) [illegible] manu insulated wires and cables	Electrical machinery apparatus, appliances and supplies and parts
23	370	Machinery and transport equipment	Ship and boat building and repairing
24	973	Repair Services	Repair of motor vehicles and motor cycles

Appendix III

Statement showing at 2 digit level the census of India classification, the classification used in our study and their equivalent in (NIC)-70

Classification according to Census 1961	Classification according to Census 1981	(NIC)70	Classification of our study	Description of Industry according to (NIC)70
20	20-21	20-21	20-21	Manufacture of food products
20+22	22	22	22	Manufacture of tobacco and beverages and other tobacco products
23	23	23	23+24+25	Manufacture of cotton textiles
25+26	24	24	24	Manufacture of wool, silk, synthetic fibre
24	25	25		Manufacture of jute, hemp & mesta textiles
27	26	26	26	Manufacture of textile products (including weaving apparel other than footwear)
28	27	27	27	Manufacture of wood and wood products furniture and fixtures
29+30	28	28	28	Manufacture of paper and paper proudcts and printing, publishing and allied activities
31	29	29	29	Manufacture of leather and fur products (except repair)
32	30	30	30	Manufacture of chemicals and chemical products (except products of petroleum and coal)
34+35	32	32	32	Manufacture of non-metallic mineral products
36	33	33	33+34+35	Basic metal and alloys industries
	34	34		Manufacture of metals and metal products except machinery and transport equipment, Manufacture
	35	35		of machinery and machine tools and parts except electrical machinery
37	36	36	36	Manufacture of electrical machinery, apparatus,appliances supplies and parts

38	37	37	37	Manufacture of transport equipment and parts
39	38	38	38+97	Other manufacturing industries and Repair services
	39	97		

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