

## **ECONOMIC DIVERSIFICATION IN KERALA : A SPATIAL ANALYSIS**

**Mridul Eapen**

Centre for Development Studies  
Thiruvananthapuram

April 1999

---

This is a revised version of a paper presented at the Dr.T.N.Krishnan Memorial Seminar on Development Experience of South Indian States in a Comparative Setting, held in the Centre for Development Studies on 7-9 September 1997. I am grateful to Dr.K Nagaraj for very helpful comments and to Dr.Chandan Mukherjee and Dr.Santhakumar for

## ABSTRACT

The issue of rural economic diversification as a critical component of rural transformation in less developed economies, has assumed considerable importance in the development dialogue since the seventies. Given the failure of the industrialisation led development strategies to "trickle down" to the rural poor, a need was felt for restructuring the development strategy of the fifties. The agricultural-rural sector was to be regarded as having greater flexibility in absorbing labour and generating extensive growth, rather than as a sector passively supplying labour to an urban based industrial sector. While the labour absorption capacity of agriculture in the aggregate appeared to be limited, it was the creation of non-agricultural activities, in particular rural small-scale manufacturing enterprises, that was more crucial in the restructured strategy. An issue which came to be much debated in this context was: Is the process of rural diversification primarily agricultural-rural induced or did the impulses lie outside the rural economy? Our study also addresses this question in an attempt to examine structural transformation of employment, spatially, over the period 1971-91 in Kerala. This state is unique in many respects among the states of India, one of which is its settlement pattern, characterised by a rural-urban continuum. Applying the "continuous method" to study spatial change in the occupational structure across rural, small towns and large urban units (comprising of cities/big/medium towns and agglomerations), we find that economic diversification in general and manufacturing in particular, has been fairly rapid in rural areas. Within the latter, some rural settlements, numbering about 128 villages, were transformed into urban areas during 1971-91. An examination of certain socio-economic characteristics of these villages, which can be used as proxies for "agricultural-rural" and "urban" linkages reveals that, in fact, both types of linkages play a dominant role in economic diversification depending on the location of the village vis-a-vis large urban units. In other words higher agriculture linked indicators are associated with highly diversified "isolated" villages while urban linkages determine the growth of non-agricultural activities in extensions/outgrowths of urban agglomerations.

**JEL Classification:** J 21, O18

**Key Words:** Diversification, non-agricultural employment, linkages,

## **1. Introduction**

The issue of rural economic diversification, has assumed considerable importance in the development dialogue since the seventies. It is regarded as a critical component of rural transformation in less developed economies, given the failure of the industrialisation-led development strategies of the fifties to “trickle down” to the rural poor. The latter failed most obviously in their inability to absorb rural labour into the process of industrialisation as also to elicit the necessary supplies of food from the agricultural sector, required for it. A need was felt therefore for a restructuring of the development strategy with a more direct intervention in the agricultural sector. While an extreme version of the restructuring exercise was put forward by Mellor (1976) arguing for an agriculture-led strategy of growth, more generally it was recognised that there was need to re-examine the role of the agricultural or more broadly, rural sector in the context of long-run economic development. It was to be regarded as a sector which had considerable flexibility to absorb labour and generate extensive growth rather than as one “passively” supplying labour to an urban based industrial sector (Bhaduri 1992).

While the labour absorptive capacity of agriculture appeared to be limited in the aggregate, it was the generation of rural non-agricultural employment opportunities and incomes that was more crucial. A major role in the process was ascribed to rural small-scale manufacturing enterprises (RSSEs), the potential dynamism of which was being realised, despite their earlier neglect, in the context of discussions on “proto-industrialisation” and “flexible specialisation”. While the possibility of the rural small-scale sector in contemporary developing economies graduating to large-scale modern enterprises (as envisaged under “proto-industrialisation”) appeared to be limited, there were other ways in which it could contribute to the advance of modern industry in an economy (Berry 1987; Grosh et al 1996). Manufacturing activity was emphasised in the restructured strategy to avail of the vast potential rural market for industrial goods which had virtually been neglected in the earlier development strategies. The growth of non-agricultural employment in general and RSSEs in particular, was to be induced largely through intra-spatial linkages, minimising the need for a rural-urban migration of labour. This did not imply viewing the villages as isolated or closed economies but as having greater autonomy in generating productive employment opportunities in the context of their own development priorities.

However, that growth in non-agricultural employment in rural areas was primarily agriculture-driven *a la* Mellor (1976) was seriously challenged. Considerable empirical evidence was garnered to highlight the dominance of urban based impulses in the generation of rural non-farm activity (Harriss 1991; Sen 1996). The current state of the debate is a point of departure for our study which relates to the state of Kerala. The latter is unique in many respects among the states of India. Historically, it has been characterised by low rural-urban differentials and a high incidence of rural non-agricultural employment, including

rural industries, related to its rich natural resource base. In the more recent period, an area of major concern in its transformation process has been the declining fortunes of the traditional industrial production base and the inability of the state to develop and modernise its industrial sector while the tertiary sector has grown rapidly. It is against this background that we examine the spatial dimension of the work force in the state for the period 1971-91, highlighting the changes in its occupational structure particularly in respect of manufacturing. An attempt is also made to investigate some of the determinants of economic diversification.

The paper is organised in five sections. Since the spatial dimension of the growth of the work force and its structural transformation during the period 1971-91 is examined at two levels using two different definitions of space, we start, in Section 2 by defining space in terms of the rural-urban divide, "urban" being further classified by size class of towns<sup>1</sup>. This is especially relevant in the Kerala context given the nature of its settlement pattern and urbanisation process; rural has to be viewed as an integral part of a spatial hierarchy. The exercise reveals that economic diversification has been particularly pronounced in certain rural settlements transforming them into towns by 1991. At the second level, space is defined in terms of the rural settlements of 1971 which became

- 
1. Urban centres are classified into six size classes of towns on the basis of population:

	Population
Class I (Cities)	100,000 and >
Class II (Big Towns)	50,000-99,999
Class III (Medium Towns)	20,000-49,999
Class IV	10,000-19,999
Class V	5,000- 9,999
Class VI	less than 5,000

Classes IV, V and VI constitute small towns. While the population size of the last size class of town is the same as that of rural areas, there are two additional criteria, on density of population and its occupational structure, that urban areas have to satisfy.

urban by 1991 for an analysis of changes in the structure of employment. This is done in Section 3. In an attempt to capture the process of diversification, in Section 4, we focus on certain socio-economic characteristics of the villages that became urban, which could be used as proxies for “agricultural-rural” and “urban” linkages, to explain variations in the proportion of non-agricultural employment across the villages. These data, though available only for 1971, do provide us with some insights into the process. Section 5 is by way of a conclusion.

## **Section 2**

### **Spatial Dimension of the Work Force and its Changing Pattern: The Rural-Urban Divide**

#### ***2.1 Broad Definitions Used***

Conceptually “rural” is defined not in terms of location in rural areas but whether the activity generates developmental links with the rural sector, although secondary data do not permit such a distinction. While earlier literature on rural non-farm employment often focussed exclusively on designated rural areas (Shand 1985; Islam 1987), later studies adopted a wider definition of “rural” with increasing evidence of considerable functional relationship, particularly between small towns and villages (Stewart and Bagachwa 1990; Saith 1992; Papola 1992). However, that the reach should not extend to too large an urban settlement was also recognised due to the danger of the latter sucking in most of the financial resources allocated for development of micro regions (Sigurdson 1978).

The difficulty in delimiting rural and urban is brought out sharply in the context of Kerala with its densely populated villages, dispersed urban pattern and a historically well-developed transport system rendering every village accessible by road. In terms of population size and density, an overwhelming proportion of the villages would be semi-urban. Even

in terms of the third criterion for defining urban, viz. the male occupational structure<sup>2</sup> a number of villages are in fact urban. However, the nature and scale of operation of non-agricultural activities does vary between rural, semi-urban and larger urban settlements and hence analytically makes the distinction meaningful. Since we have used the “continuous method” (explained later) to examine spatial change, “rural” in our study, includes small towns and to some extent medium towns. All activities other than cultivation, agricultural labour, fishing, forestry and rearing of livestock, are considered as non-agricultural activities.

## ***2.2 The Data Base***

The two major sources of data on workers and their industrial distribution in India, are the decennial Population Censuses and the various Rounds of the National Sample Survey Organisation (NSSO), neither of which is free from problems for an analysis of long term trends. In respect of the former, the problems of inter-censal comparability due to changes in the definition or concept of “worker”, are well-known. They make a significant impact on the enumeration of female workers for whom work and non-work can be indistinguishable, especially in rural areas. The concept of secondary, subsidiary or marginal workers, as opposed to principal or main workers, was introduced in the 1981 Census<sup>3</sup>. This was to take care of work which may be irregular, for less

- 
2. “Urban” is generally defined in terms of a three-fold criteria adopted by the decennial Censuses: a. Places with a minimum population of 5000 persons; b. Density not less than 400 persons per sq.km; and c. At least 75 percent of the male workers should follow non-agricultural livelihoods.
  3. There was a change in the definition of worker between the 1961 and 1971 census. The 1971 census adopted the concept of main activity that is, the activity in which he/she is mostly engaged. Those who had worked intermittently would have reported non-work as their main activity. This was a big shift from the 1961 Census where a person was deemed a worker if he/she had worked for the major part of the working season or fortnight, or preceding the date of enumeration, resulting in a sharp fall in the worker participation rates in the country in the decade 1961-71. In order to capture irregular workers, the concept of marginal workers was introduced in 1981 (Krishnamurty 1984).

than half the year or interspersed with household work and hence draw in the workers, primarily women, who otherwise would be classified as non-workers. However, full information, particularly the industrial distribution of such workers is usually published quite a few years after the census year. Hence a part of the work force, viz. the marginal workers, are left out of the analysis.

While it is generally accepted that the NSSO methodology and concepts ensure a better enumeration of the work force, especially the female workers, the estimates thrown up by these surveys are not without limitations, constraining long term comparisons. A major problem is the non-comparability for all states of the two surveys in the seventies (27th and 32nd Rounds)<sup>4</sup>, nor is the industrial distribution of the work force available at the state level in the 27th Round relating to the year 1972-73. The non-availability of the NSSO data at a disaggregate level, below that of a state, except for very broad regions<sup>5</sup> within a state, also limits its use. As far as our own study is concerned, we have used the decennial Census as the basic source of information since it gives the spatial distribution of the work force, not only for broad rural-urban categories, but for urban centres disaggregated further by size-class of towns. We use the latest Census of 1991. However, since the industrial break-up of marginal workers is still not available for 1991, the earliest Census that can be compared with the “main” workers of 1991 is the 1971 Census which defined a worker in terms of his/her main activity. The

---

4. This was due to a problem similar to the one noted in footnote 3. The 27th Round (for the year 1972-3) had used a relatively liberal definition of worker and the concept of subsidiary workers was introduced in the 32nd Round relating to the year 1977-8 to make the two sets of data comparable.

5. The NSSO divides the 15 major states of India into 56 regions. Kerala is constituted of two regions, north and south.



underestimation of the female workers who constitute an important segment of the marginal workers, arising from this necessary procedure, is a serious limitation.<sup>6</sup>

The specificities of the agrarian set up in Kerala suggest a higher level of diversification of the rural economy compared to the rest of the country (Eapen 1994). Historically too, the share of non-agriculture has been much higher in Kerala - one third of the male work force in 1911 vis-a-vis one fourth for India (Krishnamurty 1971). And it is one of the few states in which the share has steadily increased while at the all-India level a noticeable shift in the occupational structure was observed only since the early seventies. Estimates of the 1991 Census show that about 44 percent of males (24 percent for all-India) and almost a similar proportion of females (14 percent at the all-India level) in the rural work force are engaged in non-agricultural activities in Kerala, highest among the major states of India.

Interestingly, more recent evidence from the 50th Round of the National Sample Survey Organisation (NSSO) for the year 1993-4 reveals a stalling of the process of occupational shift at the all-India level (Kundu 1997). However, in the case of Kerala, while rural male non-agricultural employment has remained almost constant, in respect of females there was a marked increase by 1993-4; half the female work force in rural Kerala is engaged in non-agricultural activities compared to less than 14 percent for all-India (NSSO 1996). Moreover, the proportion of rural workers, both women and men, employed in manufacturing is also much higher in Kerala than for all-India, resulting in a narrower rural-urban gap in this respect. This reflects a more dispersed pattern of industrial

---

6. The proportion of marginal workers, both for males and females has declined in the decade 1981-1991 for the state as also for all-India. In 1991, 4.1 percent of the women and 3.6 percent of men were marginal workers in Kerala. However of all female workers, almost 23 percent were marginal workers; in the case of men it was about 7 percent (Census of India, Kerala, 1991).

growth in the state as was brought out by an earlier, comprehensive study on Indian industrialisation (Kundu and Raza 1982) even while the state is industrially backward (Subramanian 1990).

### *2.3 Methodology for Studying Spatial Growth Rates*

The relevance of stratifying urban centres further in the context of our study has to be understood against the state's mixed rural-urban settlement pattern. The latter had a considerable impact on the process of urbanisation in the state propelled largely by the diversification of densely populated rural settlements resulting in the emergence of a number of "new" towns (Sreekumar 1993). This results in an underestimation of the growth of non-agricultural employment in rural areas over time (Visaria and Kothari 1984). A stratification of urban centres and the use of the "continuous method" to study spatial change would enable us to capture the **process** of rural diversification more realistically.

Spatial growth can be estimated either by the instantaneous or by the continuous method. In the first method the locality is classified as rural or as belonging to a particular town group according to the size of its population at the time of each census, and collections of centres of the same size category in different census years are compared. No allowance is made for the fact that the number of towns in each size class may change between censuses. In the latter method, rural areas and towns are classified according to size of population at one point of time and the same set of units belonging to a particular class of locality is compared over time. That the two methods can yield quite disparate results was brought out in the study by Suri (1968) on size and growth of towns. While the instantaneous method established a positive relationship between growth of urban population and size of locality, the continuous method showed that the smallest towns had grown the fastest in terms of population.

We have adopted the continuous method since it would enable us to follow through the structural transformation of the work force in rural settlements over time. In some rural settlements the transformation may occur without changing the agrarian character of the settlements. However, in some it may be of a scale large enough to change the rural economy into an urban one resulting in the emergence of “new” towns (see Jayaraj 1996). We study the rural, small towns and large urban units, including urban agglomerations (UAs)<sup>7</sup> as they were defined in 1971<sup>8</sup> and changes in their employment structures by 1991.

#### ***2.4 Rural-urban Growth Rates by Industry Group***

We now examine Table 1 which gives annual growth rates of employment for the period 1971-91 by industry groups across the three spatial categories, rural, small towns and large urban units viz. medium, big towns and cities including urban agglomerations (which are considered as one urban unit.)<sup>9</sup> From the table we observe that total employment grew by less than 2 percent per annum; growth of employment in rural areas was even lower and was slower than the rate

- 
7. An urban agglomeration is a continuous urban spread consisting of a city/big/medium town (or contiguous towns) and its (their) adjoining urban outgrowths/extensions.
  8. There were no urban agglomerations in 1971 in Kerala. However, by 1981, 9 were formed which increased to 16 by 1991. Given the continuous methodology used, UAs were constituted for 1971 by taking the core cities and contiguous towns of 1991 UAs which existed as urban units in 1971. All extensions/outgrowths which were newly added during the period but which were rural in 1971 were treated as rural in 1991.
  9. Medium towns have been taken together with cities and big towns since their occupational structure in terms of the agriculture - non-agriculture mix between 1971 and 1991 moved very close to the structure of the latter. The three spatial categories, rural, small towns and medium/big towns/cities, have been defined in terms of their status in 1971. For instance all those settlements which were designated rural in 1971 are treated as rural in 1991 though some may have become small or medium towns in 1991. Similarly for small towns and the medium/big towns and cities.

**Table 1 Annual Compound Growth Rate of Employment by Industry Group and Spatial Categories: 1971-91**

Industry group	Spatial Category													
	Rural			Small Towns			Cities/Big/Medium Towns*			All Urban			Total (Rural and urban)	
	P	M	P	M	P	M	P	M	P	M	P	M		
Population	1.5	1.4	5.1	5.1	1.5	1.4	1.9	1.8	1.6	1.6	1.6	1.6		
Main workers	1.3	1.4	5.4	6.4	1.6	1.6	2.1	2.0	1.5	1.5	1.6	1.6		
I. Agriculture	0.5	0.6	8.1	7.8	1.2	1.4	2.8	2.8	0.6	0.6	0.7	0.7		
II. Non-agriculture	2.5	2.4	4.2	4.1	1.6	1.6	1.9	1.8	2.5	2.5	2.4	2.4		
1. All manufacturing	0.9	0.7	3.2	2.6	0.5	0.5	0.8	0.7	0.8	0.8	0.7	0.7		
i. Household Manufacturing	-1.2	-2.0	0.1	neg	-1.4	-1.6	-1.2	-1.3	-1.1	-1.1	-1.9	-1.9		
ii. Non-Household Manufacturing	1.6	1.3	4.2	3.3	0.7	0.8	1.1	1.0	1.5	1.5	1.4	1.4		
2. Construction	5.6	5.5	9.6	9.6	6.0	6.0	6.3	6.3	5.9	5.9	5.8	5.8		
3. Trade & Commerce	3.3	3.1	4.6	4.5	2.6	2.4	2.8	2.6	3.3	3.3	3.1	3.1		
4. Transport & Communication	4.3	4.4	5.1	5.1	2.1	2.0	2.3	2.3	3.9	3.9	3.9	3.9		
5. Other services	2.3	1.8	3.5	3.4	0.9	0.4	1.1	0.6	2.1	2.1	1.7	1.7		

Source: 1. Census of India, Series 9, Kerala 1971, Economic Tables B1-BIV and Census of India, 1971, Kerala, Town, Town and Village Directory, Director of Census Operations, Thiruvananthapuram.  
 2. Census of India, Series 12, Kerala 1991, Economic Tables for District, Taluk, Block, Panchayat and Town for each district (Not wholly published).

Notes: 1. As indicated in the text, growth rates have been estimated by using the continuous method.  
 2. Agriculture includes Cultivators, Agricultural labour, and Livestock, Fishing etc. P - Person; M - male. \* Cities, big and medium towns include urban agglomerations. neg - negligible.

of growth of population. Population growth was fastest for the small towns confirming Suri's findings (1968). There was considerable variation in industry-group wise rates of growth which had a significant impact on the occupational structure.

The slow growth in rural employment was largely a reflection of the slow growth in agricultural employment which was less than 1 percent per annum due primarily to the declining acreage under paddy. Considerable employment was generated however, (particularly for females) in some agricultural activities like dairying, livestock, poultry production etc. (data not shown separately). Such employment has tended to grow much faster in small towns resulting in a "ruralisation" of small towns. That consumption of non-grain food commodities rises with increase in rural incomes is confirmed by other studies on rural diversification (Hazell and Hojjati 1995).

Non-agricultural employment has grown at a much higher rate (almost 2.5 percent per annum) in rural areas; it was lower in the large urban units. Within non-agriculture, growth was highest in construction for all spatial categories. Employment in the tertiary sector grew at a higher rate than in manufacturing for all locations. The uneven growth of manufacturing employment in terms of its spatial spread is indicated by the fact that while for the state as a whole it grew at about 0.8 percent per annum, it was as high as 3.2 percent in small towns and almost 1 percent in rural areas; growth of employment in manufacturing was as low as 0.5 percent in cities/big/medium towns. Even if household manufacturing is excluded, in which the absolute numbers have declined,<sup>10</sup> growth in non-household manufacturing employment was

---

10. This is true even if we include marginal workers whose incidence would be higher in household manufacturing.

higher in rural areas and small towns. A large part of this growth was due to a much higher rate of growth of female employment in manufacturing (data not shown separately) which suggests the increasing importance of labour intensive industries in these locations. Women are employed in such industries primarily on account of the lower wages that are paid to them.

### ***2.5 Emerging Spatial Pattern of Employment***

In this sub-section we examine the impact of these differential growth rates by industry and type of location on the occupational structure of the state. The significant expansion of non-agricultural activities in rural areas is confirmed by Table 2. From a little over one-third of the work force in 1971, by the early nineties, almost half the workers in rural areas were engaged in non-agricultural pursuits. On the other hand in the small towns there was a sharp increase in the share of employment in non-crop related agricultural activities, particularly for females which resulted in a significant decline in the proportion of the non-agricultural work force in small towns. The large urban settlements showed a more stable occupational structure; the shift towards non-agriculture was marginal, from 82 percent to 83 percent. However, there was some change in the composition of non-agricultural employment in large urban units in terms of a decline in the share of manufacturing while the service sector increased its share further. Of the latter, almost one-third of the increase was in trade and commerce (see Appendix A which gives the percentage distribution of total change in employment over the period 1971-91 by industry groups).

The share of manufacturing declined for all spatial categories especially for males, given the low growth rates of employment in manufacturing, aggravated by an absolute decline in household manufacturing. However, it may be noted that in rural areas the share of non-household manufacturing increased marginally for both men and

Table 2: Spatial Pattern of Employment by Industry Group (in percent)

Industry group	Year	Spatial Categories																	
		Rural			Small Towns			Cities/Big/Med. Towns											
		P	M	F	P	M	F	P	M	F									
I. Agriculture	71	61.9	61.1	64.6	29.6	28.8	32.6	17.6	17.4	18.5	52.3	52.2	52.5	46.8	44.7	53.1	16.5	17.0	14.5
1. Cultivators	71	20.2	25.1	5.1	8.4	10.1	2.5	3.5	3.9	1.6	13.9	16.4	6.2	9.8	11.5	4.6	2.7	2.9	1.7
2. Agricultural Labour	71	34.4	28.3	53.5	17.6	14.3	29.4	9.1	7.4	16.4	91	28.7	25.2	40.2	19.5	22.5	7.9	7.2	11.2
3. Livestock Fishing etc	71	7.4	7.8	6.1	3.6	4.4	0.7	5.1	6.1	0.6	91	9.6	10.6	6.2	13.7	26.0	5.8	6.9	1.5
II. Non-Agriculture	71	38.0	38.9	35.4	70.4	71.2	67.5	82.4	82.6	81.5	91	47.7	47.8	47.5	53.2	46.9	83.4	82.9	85.5
4. Mining and Quarrying	71	0.5	0.6	0.1	0.7	0.8	0.4	0.3	0.3	0.3	91	1.1	1.2	0.8	0.8	0.4	0.3	0.4	0.2
5. All Manufacturing	71	14.5	12.8	20.1	22.2	21.6	24.5	22.5	22.4	23.1	91	13.5	11.1	21.2	12.7	17.8	18.1	18.3	17.3

Industry group	Spatial Categories												
	Rural				Small Towns				Cities/Big/Med. Towns				
	Year	P	M	F	P	M	F	P	M	F	P	M	F
i. Household	71	4.4	3.2	8.3	7.2	5.5	13.5	3.4	2.6	6.7			
Manufacturing	91	2.7	1.6	6.2	2.5	1.9	4.1	1.8	1.4	3.8			
ii. Non Household	71	10.1	9.7	11.8	14.9	16.1	10.9	19.2	19.8	16.4			
Manufacturing	91	10.8	9.5	14.9	11.5	10.8	13.7	16.3	16.9	13.5			
6. Construction	71	1.6	2.0	0.2	1.8	2.2	0.6	2.5	2.9	0.8			
	91	3.7	4.6	0.8	3.8	4.7	0.9	5.9	6.8	1.7			
7. Trade and	71	7.4	9.3	1.5	16.9	20.4	4.2	18.8	21.8	6.0			
Commerce	91	10.9	13.1	3.5	13.9	17.1	4.7	22.9	25.7	12.0			
8. Transport and	71	2.8	3.5	0.8	6.9	8.5	1.5	10.2	12.0	2.4			
Communication	91	5.0	6.3	1.3	6.2	7.9	1.0	11.4	13.3	3.5			
9. Other Services	71	11.1	10.6	12.7	21.9	17.8	36.4	28.1	23.2	48.8			
	91	13.5	11.6	19.9	14.6	12.0	22.2	24.7	18.5	50.8			

Source : Same as Table I

Notes: 1. The spatial categories have been defined by using the continuous method

P- persons; M- Males; F - Females



women and for women in small towns. Of the total increase of about 226,000 persons employed in manufacturing between 1971-91, almost 78 percent of the increase was in rural areas (data not shown here). Women accounted for over 54 percent of the increase resulting in a growing “feminisation” of the manufacturing work force. The ratio of female to male manufacturing workers in rural areas increased from 0.48 in 1971 to 0.58 in 1991; the increase in urban areas was marginal.<sup>11</sup>

A striking feature of the above trends is the narrowing of the gap in the proportion of non-agricultural employment between rural and urban areas which was dramatic between the small towns and rural areas. Hence non-agricultural activity in the state, including manufacturing activity, continues to be dispersed as was found in the study for the period 1961-71 by Raza and Kundu (1982). However, as we shall see in Section 3, a tendency also appears to be emerging towards agglomeration which may tend to sharpen rural-urban differences in the years to come.

Ho, in his study on Taiwan (1979), tracing the growth of non-agricultural activity by size of locality, found a similar broad basing of the changes. In fact in Taiwan, not only was the rate of growth of employment in manufacturing the highest in rural locations, it was also higher than the growth rates in tertiary sector employment, which however was not the case in Kerala. The study by Haggblade et al (1989) which also looks at structural change by size of location in Sub-Saharan Africa, found a much sharper increase in tertiary sector employment as one moved from rural settlements to small towns and above; the increase was much less pronounced in the case of manufacturing.

---

11. This increase in the proportion of female workers in manufacturing is corroborated by the latest Round of the National Sample Survey Organisation (NSSO). The proportion of female workers in manufacturing increased from 23.5 percent in rural Kerala in 1987-88 (NSSO 43rd Round) to 24.5 percent in 1993 (NSSO 50th Round). Male workforce in manufacturing declined from 10.7 percent to 9.9 percent over the same period. These estimates are not strictly comparable since rural areas in this context are defined as per the instantaneous method.

### Section 3

#### Pattern of Employment in the New Towns

The new towns constituted roughly about 12 percent of the population of all rural locations in 1971 numbering roughly 128 villages<sup>12</sup> and over one third of the urban population in 1991. Hence their contribution to the process of urbanisation was substantial. A larger number of these towns are in the nature of extensions/outgrowths of urban agglomerations (UAs) while the rest are relatively independent/isolated<sup>13</sup> towns. It may be noted that in 1971 there were no urban agglomerations in Kerala and it was since 1981 that such agglomerations were identified. Their number has grown from 9 in 1981 to 16 in 1991<sup>14</sup> drawing in increasing numbers of erstwhile rural settlements. The socio-economic structure of such urban centres would differ considerably from that of the relatively isolated rural areas far-off from the big/medium towns, the gap depending on the pace and growth of agglomeration.

An examination of the work force structure in the new towns reveals that occupational change was rapid in rural areas primarily on their account, that is, those rural settlements which became urban in 1991 either as extensions to UAs or as independent/isolated towns (see Table 3). This is a two way table, the underlying rationale of which is akin to that of the continuous method. With 1971 as the reference year, the rural of 1991 is split into those locations which remained rural in 1991 (cell

- 
12. The equivalence between the village of 1971 and “new” town of 1991 may not always be exact due to change in area or name particularly if the village is bifurcated or combined with another village. Hence while new towns number 138, the equivalent villages were 128.
  13. The word “independent” is used to distinguish such towns from the extensions or those towns connected to UAs. These towns are also, on average, relatively “isolated” in terms of distance from the nearest town compared to the extensions. However, this may not always be so.
  14. See fn.8

Table 3: Two-Way Table, 1971 and 1991

		1991					
		Rural			Urban		
1971		Propn. of workers in Non Agriculture (%)	Propn. of workers in Manufa- facturing (%)	Propn. of workers in Non Agriculture (%)	Propn. of workers in Manufa- facturing (%)	Propn. of workers in Non Agriculture (%)	Propn. of workers in Manufa- facturing (%)
Rural	P	38.3	10.0	74.7	25.2	46.2	13.3
	M	38.2	7.8	77.7	22.1	46.2	11.0
	F	38.6	17.0	75.1	35.6	46.3	21.0
			(1384)		(128)		
Urban	P	46.2	14.0	85.1	18.7	81.8	18.3
	M	48.2	11.5	84.2	18.8	81.4	18.2
	F	41.4	21.4	87.2	18.4	82.9	18.8
			(13)		(75)		

Source: Same as Table 4.1

Note: 1. Figures in brackets refer to approximate numbers of settlements.

P - Persons; M - Males; F - Females; Propn - Proportion.

1) and those which became urban (cell 2). A most striking feature of the second cell, that is, the rural settlements which became urban, is that the proportion of workers in non-agricultural activities and manufacturing in particular, 75 percent and 25 percent respectively, is almost double / more than double the proportion for villages in the first cell, that is, those that remained rural. This suggests that rural diversification has been very uneven across the state. While the urban centres which remained urban in 1991 are characterised by a higher proportion of non-agricultural employment, the share of manufacturing is much lower (18-19 percent) than in the new towns (cell 2). This suggests that the tertiary sector has been growing relatively faster in the large urban settlements while manufacturing activity is being increasingly located in the extensions and outgrowths. The 13 settlements which became rural in 1991 indicate urban settlements which were de-classified into villages between 1971-91.<sup>15</sup> As for the independent/isolated towns, about 20 percent of them are medium size towns, some of which may become the nuclei of future agglomerations while the remaining small towns would constitute part of the rural-small town nexus.

#### **Section 4**

##### **The Process of Rural Diversification: Some Linkages Explored**

In this section we attempt to understand the process of structural transformation of the rural work force at the village level in terms of certain determinants discussed in the literature on rural non-farm employment. Village level data pertaining to the rural settlements that

---

15. This feature is a negative component of the process of urbanisation lending it considerable instability. It has played a significant role in Kerala's urban system just as the emergence of new towns has also played an important role. De-classification may occur due to decline in the proportion of employment in non-agricultural occupations, particularly traditional household industries or increase in population growth in an urban area without a commensurate growth in non-agricultural employment (Sreekumar 1993).

have become urban are examined. As stated above there were about 128 villages which became urban between 1971 and 1991.

#### **4.1 Data Base**

The major source of socio-economic information at the village level in India is the District Census Handbook, covering all the districts of a state, brought out after each decennial Census, though with considerable delay. It gives a directory of the towns and villages in each district and information on characteristics relating to the pattern of employment, agricultural production base and some aspects of infrastructure (Vaidyanathan 1996). These data for 1971 provide us with certain initial conditions existing in each village, like the extent of area cultivated, the proportion of irrigated area, cultivated area per agricultural worker, incidence of agricultural labour, distance from the nearest town and literacy levels.<sup>16</sup> However, in the absence of similar data on these characteristics for 1991, we were unable to capture the extent to which changes in initial conditions impact on the process of economic transformation. This is a serious limitation, since the mid-seventies mark a turning point in Kerala's path of development with large-scale migration of (primarily) male work-seekers, from rural and urban areas, to countries in West Asia. The consequent inflow of remittances by the workers in the Gulf has had a deep impact on the economy of Kerala, particularly in respect of a rapid growth of consumer demand for goods and services and investment demand reflected primarily in a building "boom" (Eapen 1994; Krishnan 1994; Issac 1997). This would have been a major exogenous factor inducing the diversification of the rural economy since the late seventies. Since inflow of remittances is external to the rural

---

16. Some village level data on schools, post office and communication- road and rail, are available from the same source. All the villages under study possess these facilities which did not show much variation among the villages.

economy and migration would have been facilitated in rural areas close to large urban towns, it would strengthen the impact of “urban” (that is, external) linkages. Data on migration at the village level are not available; neither was it very significant in 1971. Ours is a cross-section analysis, attempting to relate the proportion of male non-agricultural employment in 1971 (or the proportion of manufacturing employment in particular)<sup>17</sup> to the above stated characteristics across the villages in the pre-Gulf boom period. (In this section most of the worker related characteristics are in terms of male workers).

#### ***4.2 Major Issues in the Literature on Non-agricultural Employment***

A tremendous amount of literature has appeared on rural non-agricultural employment in the wake of Mellor’s “rural growth linkages” model with its near exclusive emphasis on an agriculture-induced process of rural diversification (Mellor 1976). The critique of this model opened up wider perspectives on the nature of linkages and the growth of rural non-agricultural activities. Since the generation of rural non-agricultural employment offered a powerful policy instrument for alleviating rural poverty and underemployment in developing economies, research has centred around two major issues of concern, which have also been highly controversial:

- What induces rural economic diversification? Is it *a la* Mellor primarily agriculture-led or are the growth impulses urban-based? and

---

17. We consider the determinants of employment in manufacturing in particular since we are interested in understanding the potential for rural industries. An examination of the data revealed that the proportion of male work force in manufacturing moves in tandem with the proportion of male non-agricultural employment but its rate of change is lower. The rank correlation coefficient between the two in 1971 was 0.46.

- Do such activities signify a positive development, that is, a move into more productive activities vis-a-vis agriculture or are they largely in the nature of distress-induced diversification into which the poor are pushed due to pressure on land?

In this section we too, broadly attempt to answer these questions using the socio-economic data available at the village-level as proxies for the presence of “rural” and “urban” linkages in the growth of rural non-agricultural employment. Some approximation to a distress-induced diversification is also attempted. (Since we are examining the data in 1971 during which the settlements under consideration were rural, we refer to them as villages though in the earlier section these were being referred to as “new” towns).

#### ***4.3 Approximating Agriculture-induced Linkages from the available Socio-Economic Data***

Given the nature of data available which precludes the estimates of agricultural output and incomes at the village level, we use the percentage of cultivated area (CA %), ratio of cultivated area per male agricultural worker (CA/MAW) and the extent of land irrigated (IR/CA %) as agricultural growth induced consumption and production linkages which generate non-farm activity. Villages which combine a high proportion of cultivated area, high cultivated area per agricultural worker and a high incidence of irrigation would generate relatively higher agricultural incomes. The latter imply a high consumer demand for goods and services and the rural income multiplier would be large depending on the consumption behaviour of the agriculturists. Production linkages would depend on the nature of farming practices in use and the prevailing agrarian structure. The use of chemical fertilisers and other inputs as also heavy labour-saving machinery results in poor local multiplier effects. However, a high incidence of irrigation, including the use of

pumps, new varieties of seeds, mechanical threshers, repair services and construction activities generate greater linkages. Hence the higher are rural incomes and the more egalitarian is the landholding structure, the greater the local multiplier effect in terms of relatively labour intensive goods such as non-foodgrain agricultural commodities and simple manufactured goods which could be produced locally. The land reforms in Kerala have resulted in a dramatic reduction in landlessness and abolition of tenancy broadening the land ownership base (Raj 1992). The incidence of commercial cropping too, like rubber, coconut, pepper among others, is high on small landholdings resulting in a much wider spread of benefits from increases in prices or productivity of such crops. This should result in a broad based rural market demand.

Worker participation rates (WPR) or level of employment should also have a positive impact on rural incomes. However, this may not necessarily be so given the “residual sector” role played by agriculture in most large agrarian developing economies. An increase in the proportion of economically active population in agriculture may not always reflect a response to rise in agricultural production but could be due to a sluggish growth in employment opportunities in other sectors. Hence worker participation rates tend to be negatively correlated with the extent of non-agricultural employment (Eapen 1994). Furthermore, higher levels of employment may be the consequence of low wages forcing more family members to join the labour force and hence a distress phenomenon (Bar-el 1984). The role played by this characteristic in buttressing rural incomes is uncertain.

Village level data on literacy are also given. The spread of literacy raises the quality of labour; it also helps work-seekers to move out of traditional occupations (Jayaraj 1996). Rising levels of literacy thus raise the supply of labour for non-agricultural work, since literate and educated



workers do not want to work in agriculture or low productivity traditional occupations. Some have argued that growth of education results in the generation of surplus labour because of the desire of educated people to seek non-agricultural work (Jayaraj 1996). Besides the labour supply side stimulus, high literacy levels have an impact on the demand side too, since the potential for setting up modern non-agricultural enterprises is higher among the educated entrepreneurs. This is even more true of the technically educated persons. In a state like Kerala where literacy is widespread, this characteristic may not show much variation between villages except for the educated<sup>18</sup> and above. The question is to what extent does this fund of human capital in a literate state help in the process of rural diversification?

#### ***4.4 Distress Induced Diversification***

Rural non-agricultural employment could be a reflection of the sluggish growth in agricultural employment pushing work seekers into certain types of low productivity, non-agricultural work. While we have used the ratio of cultivated area per agricultural worker as one of the indicators of rural prosperity, a rapidly declining land-man ratio indicates a push factor out of agriculture as less land is available per person for cultivation. A high proportion of male agricultural labourers to male agricultural work force (MAL/MAW), suggesting a relative surplus labour situation in agriculture, would also compel labourers to seek work outside agriculture. MAL/MAW also measures the extent of inequality among agricultural classes (Vaidyanathan 1996) and would impact on consumption linkages.

---

18. The “educated” are defined as those with matriculation, that is 10 years of schooling.

#### ***4.5 Urban Linkages***

The distance from towns is a measure of the intensity of urban linkages (URB). “Urban” is defined in terms of the distance from the nearest town. The closer it is, in kilometres, the higher the chance of the village economy responding to impulses generated from the urban centres and sooner or later being absorbed into the urban agglomeration. Demand for unskilled and semi-skilled rural labour in nearby urban centres to which the workers commute, is one way in which the urban linkage promotes the growth of non-agricultural employment for rural residents. Another way is through the rural areas catering to the demand for non-agricultural goods and services emanating from nearby urban areas, generally in the nature of sub-contracting work for urban units. The latter may take advantage of lower rural wages and/or land prices. For instance with land prices generally rising much faster in urban locations, land available in the rural hinterland is very often purchased by urban settlers for commercial or domestic purposes. This results in a decline of land based activities in the hinterland. Nearness to a town also indicates a relatively better availability of certain infrastructural services such as electricity, water, roads, post and telecommunication, schools and hospitals as a spill over of being near the town. This too would have a positive impact on the generation of non-agricultural activities in rural areas. We would expect urban linkages to be relatively higher than agricultural-rural linkages for villages that are extensions to UAs.

The above is a very broad attempt at deriving some of the possible determinants of rural non-agricultural employment from the available data on socio-economic characteristics of villages which became urban by 1991. A distinction has been made between “rural” and “urban” linkages. We attempt first to assess the extent to which variations in non-agricultural employment across villages could be explained in terms

of these determinants. Subsequently to explore the differences in the nature of linkages that may have facilitated occupational diversification we examine the village data classified by extensions and independent/isolated towns.

#### **4.6 *The Inter-Correlation Matrix***

Table 4 presents a matrix on inter-correlations among the proportion of male non-agricultural workers and the various possible determinants discussed above. From the first column of the inter-correlations, it can be seen that the proximity to urban centers (URB) has the highest correlation with the proportion of male non-agricultural workers (-0.41), followed by the literacy variables (MLIT and FLIT) and the extent of irrigation (IR/CA). It is also to be noted that most of the determinant variables are correlated with the proximity of urban centre (URB).<sup>19</sup>

Proximity to urban centres (URB) appears to be most important when we look at all the villages together. One of the reasons why many of the determinants are not found to be correlated like URB with the proportion of male non-agricultural workers (MNAW/MW) appears to be that linkages that promote occupational diversification vary across villages. Villages which are far from the urban centres may have different determinants than those which are close to the urban centres. This fact may not be evident when we look at correlation co-efficients taking all villages together.

---

19. Since we are examining the complete list of villages in Kerala which became urban over the period of 1971-91, statistical test for the correlation co-efficients is not strictly valid. Nevertheless in Table 4, we have indicated (by “\*”) the coefficients which were found to be statistically significant at 5% level, if one were to consider these villages to constitute a random sample from a hypothetical population with relevant characteristics similar to that of Kerala.

**Table 4: Inter-correlation matrix of Male Non-agricultural Workers and its Determinants**

	mnaw_mw	wpr	mal_maw	ir_ca	Log(IR/CA)	ca_maw	ca_mal
mnaw_mw	1.0000						
wpr	-0.1591	1.0000					
mal_maw	0.0100	-0.0930	1.0000				
ir_ca	0.1204	-0.0669	0.1354	1.0000			
Log(IR/CA)	0.2284*	-0.2053	0.2713*	0.8334*	1.0000		
ca_maw	0.1327	-0.0202	-0.1587	-0.0530	-0.4765*	1.0000	
ca_mal	0.0908	0.0152	-0.2290*	-0.0665	-0.4777*	0.9904*	1.0000
ca_pct	0.1218	-0.2294*	0.0074	0.0991	-0.2791*	0.1488	0.0790
mlit	0.3041*	-0.1069	0.0018	0.0102	0.1126	-0.0169	-0.0386
flit	0.2842*	-0.2048*	-0.1337	0.1203	0.2717*	-0.0863	-0.0959
urb	-0.4073*	0.4209*	-0.2272*	-0.1826*	-0.4771*	0.0607	0.0858
	ca_pct	mlit	flit	urb			
ca_pct	1.0000						
mlit	0.1182	1.0000					
flit	0.1790*	0.8311*	1.0000				
urb	-0.1626	-0.1794*	-0.3421*	1.0000			

Note: (\*) denotes statistical significance at 5% level. As the relationship between MNAW/MW and IR/CA seemed non-linear, we had considered log transformation of IR/CA for examining the correlation co-efficients.

Legend: MNAW\_MW - male non-agricultural workers as proportion of male workers CA\_MAL - cultivated area to male agricultural labourer  
WPR - worker participation rate CA\_pct - percent of area cultivated  
MAL\_MAW - male agricultural labourer/male agricultural worker MLIT - male literacy (in percent)  
IR\_CA - irrigated area as percent of cultivated area FLIT - female literacy (in percent)  
CA\_MAW - cultivated area/male agricultural worker URB - proximity to urban centre

#### ***4.7 Village Data Classified by Extensions and Independent Villages***

In order to pursue this point, we examined the village data classified by independent/isolated villages and extended villages. As outlined earlier, the latter being a part of the urban agglomeration would be much closer to a town and responsive to stimuli from the urban areas. On the other hand, the independent villages being more distant, we would expect the influence of agriculture and related activities on rural diversification to be higher.

The distance from the nearest urban centre varies within a narrow range in the case of the extended villages, between 1 and 22 kilometers with an inter-quartile range of 3 kms only. But it varies widely in the case of isolated villages, between 1 and 72 kilometers with an inter-quartile range of 10 kms. The isolated villages as a category, therefore, does not necessarily represent villages without the impact of the urban centres. For this reason, we further classified the isolated villages into two groups – those near urban centres and those far-off - on the basis of the median distance of 14 Kms.

In the next step, we identified the villages with a relatively high level of occupational diversity in all the three categories viz. isolated villages nearer to and further away from the urban centres, and the extended villages. On the basis of the means and medians of the percent of male non-agricultural workers to total male workers, we took 75 percent as the cut off point for this purpose. It is also the cut off point in respect of the 'occupational' criterion for being designated as urban. The reclassified villages are presented in Table 5.

Our examination of linkages is based on a comparison of the averages of the various indicators between the less and more (below and above 75 percent) diversified villages across the three categories defined above. In particular, we compare between isolated villages far off from

**Table 5. Number of Villages Classified by the Proximity to Urban Centres and Percentage of Male Non-agricultural Workers to Total Male Workers**

Percentage of Male Non-agricultural Workers to Total Male Workers (MNAW/MW)	Extended Villages	Isolated Villages with distance From the nearest urban centre	
		<= 14 Kms	>14 kms
Less than or equal to 75%	33	18	19
Greater than 75%	32	15	7
Mean (MNAW/MW)	71.6	69.3	62.8
Median (MNAW/MW)	73.9	72.8	65.3

Note: MMNAW/MW -male non-agricultural workers/male workers

the urban centre and the extended villages in respect of the indicators. The relevant figures are presented in Table 6.

The average extent of irrigated area (IR/CA) is very similar between highly diversified and less diversified villages in the case of extended villages (31.4 percent and 30.3 percent). However, the difference is considerable in the case of far off isolated villages (46.6 percent and 13.8 percent). Same patterns are observable in the cases of cultivated area per male agricultural worker (CA/MAW) and percent of cultivated area (CA%).<sup>20</sup> In other words, higher agriculture linked indicators are associated with the highly diversified isolated villages and not so with the extended villages. On the other hand, literacy levels do not appear to be associated with diversification in the case of far-off isolated villages. Male agricultural labour to male agricultural workers, an indicator of excess labour pushing persons out of agriculture into any available

20. As stated earlier, we are analysing the complete list of villages. However, in Table 6 we checked with Oneway Analysis of Variance and the tests were significant in the case of IR/CA and CA/MAW at 5% level.

**Table 6: Average of the Linkage Indicators by Categories of Villages**

Indicators	Isolated villages with distance from the nearest urban centre				
	MNAW/MW		Extended	<= 14 Kms	> 14 Kms
			Villages		
WPR	<=	75%	42.86	42.36	45.19
	>	75%	42.62	42.65	43.33
MAL/MAW	<=	75%	0.57	0.58	0.48
	>	75%	0.47	0.48	0.48
IR/CA	<=	75%	31.45	16.53	13.79
	>	75%	30.34	22.08	46.55
CA/MAW	<=	75%	0.86	0.99	0.91
	>	75%	1.45	1.30	6.73
CA%	<=	75%	73.68	78.52	64.59
	>	75%	77.19	77.26	87.38
MLIT	<=	75%	68.66	70.55	68.59
	>	75%	71.72	73.23	70.40
FLIT	<=	75%	56.66	57.55	52.03
	>	75%	61.73	61.85	53.29

Legend: MNAW\_MW - male non-agricultural workers as proportion of male workers  
WPR - worker participation rate  
MAL\_MAW - male agricultural labourer/male agricultural worker  
IR\_CA - irrigated area as percent of cultivated area  
CA\_MAW - cultivated area/male agricultural worker  
CA % - percent of area cultivated  
MLIT - male literacy (in percent)  
FLIT - female literacy (in percent)  
URB - proximity to urban centre

activity, does not appear to be different between the highly diversified and not so highly diversified far off villages. This implies that other positive indicators of diversification seem to be playing a more important role.

## Section 5

### Conclusion

It appears from the above spatial analysis that there has been considerable diversification of the rural economy in Kerala during the period 1971-91 which has resulted in the emergence of a number of “new” towns in the state. Growth of agricultural employment has not been able to absorb the additions to the rural labour force. The Kerala phenomenon supports McGee’s hypothesis that emerging urbanisation in parts of Asia with high rural population densities, is region based rather than city based. Besides drawing people from rural areas to the cities, this process largely utilizes an *in situ* population in the rural area itself (Casinader 1994). While the tertiary sector has made the major gain in increases in non-agricultural employment, manufacturing activity is tending to get increasingly located in the new towns which were erstwhile rural areas.

Even while there has been no increased concentration of non-agricultural employment in large urban centres the process of diversification in rural areas appears to have been fairly concentrated in a small number of villages, a large proportion of which are in fact getting absorbed into the growing number of UAs. It may be noted that in 1971 there were no UAs in Kerala. Our findings suggest that two distinct spatial formations may be emerging in the state: on the one hand are the far off rural areas with possibly a small town relationship apparent in the narrowing down of the occupational structures between the two, where agricultural linkages are more important in inducing the growth of non-



agricultural employment. As pointed out elsewhere frequently small towns absorb ruralities from surrounding hinterlands (Lindert and Verkoren 1997). On the other hand are the urban agglomerations, including those parts of the erstwhile rural areas which have been absorbed as extensions. Linkages of rural non-farm employment in this case flow from urban to rural areas. Hence both “agricultural- rural” and “urban” linkages play a dominant role in economic diversification, depending on the location of the village vis-a-vis large urban units. This is likely to hold true even if we were to take remittances into account since it is probable that the incidence of migration from villages nearer the medium/big towns and cities would be higher and hence the impact of external linkages in such villages would be further strengthened. The data also suggest that positive indicators of diversification, rather than distress, seem to be playing a more important role. Needless to state that in Kerala no village is too distant from a town except in the highland regions; however relatively, some rural areas are more isolated and hence the degree of influence from urban settlements or external factors would be lower. If with the growing tendency towards agglomeration, development activity gets concentrated in such settlements, far off rural areas would tend to get marginalised.

From the above study it appears that a policy to induce the diversification of the rural economy, in particular the growth of rural industry, has to be two-pronged, involving larger agricultural investment as also expenditures on non-agricultural activities. In large parts of Kerala in which land based factors still dominate economic activity, there is need to raise agricultural productivity, primarily through enhanced irrigation facilities. Non-agricultural expenditures should include a fair share in favour of development of rural infrastructure which would go a long way in facilitating rural diversification.

**APPENDIX A**  
**Distribution (In percent) of**  
**Increase in Persons Employed between 1971-91 by Industry/Spatial Categories**

Industry group	Rural		As % of		Small Towns		As % of		Cities/Big/ Med. Towns		Towns		Total (Rural and Urban)		
	Absolute increase	1,728,665	Absolute increase	100.0	Absolute increase	143,346	Absolute increase	100.0	Absolute increase	384,485	Absolute increase	100.0	Absolute increase	2,256,496	As % of increase
I. Total Workers (Main)		1,728,665		100.0		143,346		100.0		384,485		100.0		2,256,496	100
1. Cultivators		-97,622		-5.6		14,251		9.9		1,961		0.5		-81,410	-3.6
2. Agricultural labour		182,165		10.5		30,611		21.4		16,488		4.3		229,264	10.2
3. Livestock, fishing, forestry		307,684		17.8		35,450		24.7		28,907		7.5		372,041	16.5
4. Mining and Quarrying		50,792		2.9		1,034		0.7		1,288		0.3		53,114	2.4
5. All Manu- facturing		175,920		10.2		13,169		9.1		37,122		9.6		226,211	10.0

i. Household	-44,917	-2.6	-56	-0.04	-5,702	-1.5	-50,675	-2.2
ii. Non household	220,837	12.8	13,225	9.2	42,824	11.1	276,886	12.3
6. Construction	173,144	10.0	7,162	5.0	48,417	12.7	228,723	10.1
7. Trade & Commerce	370,112	21.4	18,083	12.6	124,077	32.3	512,272	22.7
8. Transport & Communication	205,859	11.9	8,587	6.0	54,388	14.3	268,834	11.9
9. Other Services	360,602	20.8	15,053	10.5	70,837	18.4	446,492	19.8

Source: Same as Table I.

## References

- Bagachwa M.D. and Stewart, F.(1990): Rural Industries and Rural Linkages in Sub-Saharan Africa: A Survey, **Development Studies Working Paper No.23**, Queen Elizabeth House: Oxford.
- Bar-el, R. (1984): Rural Industrialisation Objectives:the Income-Employment Conflict, **World Development**, 12(2).
- Berry, A. (1987): The Limited Role of Rural Small-scale Manufacturing for Late-comers: Some Hypotheses on the Colombian Experience, **Journal of Latin American Studies**, 19 (2).
- Bhaduri, A. (1992): Alternative Development Strategies and the Rural Sector, in Singh, A. and Tabatabai, H. (eds), **The World Economic Crisis and Agriculture in the Third World in the Eighties: The Changing Role of Agriculture in Economic Development**, Geneva: International Labour Organisation.
- Casinader, R. (1994): Enigma of Kerala's Spatial Formations:Gragara as an Invalidation/Recovery of the Desakota Hypothesis, **Abstracts, Vol.2**. A.K.G.Centre for Research and Studies, International Congress on Kerala Studies, Trivandrum.
- Census of India, Kerala, Series 12 (1991): **General Economic Tables**, Director of Census Operations, Trivandrum.
- Eapen, M. (1994):Rural Non-Agricultural Employment in Kerala: Some Emerging Tendencies, **Economic and Political Weekly**, May 21.
- Grosh, B. and Somolekae, G. (1996): Mighty Oaks from Little Acorns: Can Microenterprise Serve as the Seedbed of Industrialisation?, **World Development**, 24 (12).
- Haggblade, S., Hazell, P. and Brown, J. (1989): Farm-Nonfarm Linkages in Rural Sub-Saharan Africa, **World Development**, 17 (8).
- Harris, J. (1991): Agriculture/Non - Agriculture Linkages and the Diversification of Rural Economic Activity, in (eds) Breman, J et al, **Rural Transformation in Asia**, Delhi: OUP.

- Hazell, Peter B.R. and Hojjati, B. (1995): Farm/Non Farm Growth Linkages in Zambia, **Journal of African Economies**, 4(3).
- Ho, S.P.S. (1979): Decentralised Industrialisation and Rural Development: Evidence from Taiwan, **Economic Development and Cultural Change**, 28(1).
- Islam, R. (1987): **Rural Industrialisation and Employment in Asia**, New Delhi: ILO/ARTEP.
- Issac, T.M. Thomas (1997): Economic Consequences of Gulf Migration, in Zachariah K.C. and Rajan, S. I. (ed) **Kerala's Demographic Transition: Its Determinants and Consequences**, Sage, New Delhi.
- Jayaraj, D. (1996): Structural transformation of the Rural Work Force in Tamil Nadu, paper presented at **Workshop** on Adjustment and Development: Agrarian Change, Markets and Social Welfare in South India, 1973-93, March 27-29, Madras Institute of Development Studies.
- Krishnamurty, J. (1971): The Industrial Distribution of the Working Force in India: 1901-61: A Study of Selected Aspects, **Ph.D Thesis**, University of Delhi.
- (1984): Changes in the Indian Work Force, **Economic and Political Weekly**, 19 (50), December 15.
- Krishnan, T.N. (1994): Foreign Remittance, Consumption and Income, in AKG Centre for Research and Studies, International Congress on Kerala Studies, **Abstracts**, Vol.2
- Kundu, A. and Raza, M. (1982): **Indian Economy - The Regional Dimension**, Centre for Study of Regional Development, Jawaharlal Nehru University (JNU), New Delhi.
- Kundu, A. (1997): Trends and Structure of Employment in the 1990s: Implications for Urban Growth, **Economic and Political Weekly**, June 14.

- Lindert, P van and Verkoren, O. (1997): **Small Towns and Beyond: Rural Transformation and Small Urban Centres in Latin America**, Amsterdam: Thela Publishers.
- Mellor, J.W. (1976): **The New Economics of Growth: A Strategy for India and the Developing Countries**, Ithaca: Cornell University Press.
- National Sample Survey Organisation (1996): **Key Results of Employment/Unemployment Survey: All-India, 50th Round (July 1993 to June 1994)**, New Delhi.
- Papola, T.S. (1992): Rural Non-farm Employment: Trends and Prospects, paper presented at a **Seminar** on Rural Non-farm Employment, Institute of Social And Economic Change, Bangalore.
- Raj, K.N. (1992): Land Reforms and Complementary Measures in Kerala, **IASSI Quarterly**, Vol.19 (3).
- Saith, A.(1992): **The Rural Non Farm Economy; Processes and Policies**, Geneva: International Labour Organisation.
- Sen, A. (1996) Economic Reforms, Employment and Poverty: Trends and Options, **Economic and Political Weekly** Special Number, September.
- Shand, R.T. (ed) (1986): **Off Farm Employment in the Development of Rural Asia**: Canberra, ANU.
- Sreekumar, T.T. (1993): **Urban Process in Kerala, 1900-1981**, Trivandrum: Centre for Development Studies.
- Subramanian, K.K. (1990): Development Paradox in Kerala: Analysis of Industrial Stagnation, **Economic and Political Weekly**, September 15.
- Suri, K.B. (1968): Towns: Size, Economic Structure and Growth, **Economic and Political Weekly**, August 10.

Vaidyanathan, A. (1996): Socio-economic Characteristics of Villages in North Arcot: An Exploratory Note, Madras Institute of Development Studies, Madras.

Visaria, P and Kothari, D. (1985): Data Base for the Study of Migration and Urbanisation in India:A critical Analysis, **Working Paper No.2**, Gujarat Institute of Development Research, Ahmedabad.

**CENTRE FOR DEVELOPMENT STUDIES**  
**LIST OF WORKING PAPERS**

*(From 1991 onwards)*

- MRIDUL EAPEN** Hantex: An Economic Appraisal.  
September, 1991, W.P.242
- SUNIL MANI** Government Intervention in Commercial Crop Development:  
A Case of Flue Cured Virginia Tobacco.  
November, 1991, W.P.243
- K. PUSHPANGADAN** Wage Determination in a Casual Labour Market: The  
Case Study of Paddy Field Labour in Kerala.  
January, 1992, W.P.244
- K.N. NAIR & S.P. PADHI** Dynamics of Land Distribution: An Alternative  
Approach and Analysis with Reference to Kerala.  
January, 1992, W.P.245
- THOMAS ISAAC** Estimates of External Trade Flows of Kerala - 1975-76 and  
1980-81.  
March, 1992, W.P.246
- THOMAS ISAAC, RAM MANOHAR REDDY, NATA DUVVURRY**  
Regional Terms of Trade for the State of Kerala.  
March, 1992, W.P.247
- P. MOHANAN PILLAI** Constraints on the Diffusion of Innovations in Kerala:  
A Case Study of Smokeless Chulas.  
March, 1992, W.P.248
- R. ANANDRAJ** Cyclicity in Industrial Growth in India: An Exploratory  
Analysis.  
April, 1992, W.P.249
- T.M. THOMAS ISAAC, RAM MANOHAR REDDY, NATA DUVVURRY**  
Balance of Trade, Remittance and Net Capital Flows: An Analysis of  
Economic Development in Kerala since independence.  
October, 1992, W.P.250
- M. KABIR, T.N. KRISHNAN** Social Intermediation and Health Transition:  
Lessons from Kerala,  
October, 1992, W.P.251



- SUNIL MANI, P. NANDAKUMAR** Aggregate Net Financial Flows to India: The Relative Importance of Private Loan vis-a-vis Foreign Direct Investments.  
August, 1993, W.P.252
- PULAPRE BALAKRISHNAN** Rationale and the Result of the Current Stabilisation Programme.  
November, 1993, W.P.253
- K.K. SUBRAHMANIAN, P. MOHANAN PILLAI** Modern Small Industry in Kerala: A Review of Structural Change and Growth Performance.  
January, 1994, W.P.254
- DILIP M.MENON** Becoming Hindu and Muslim : Identity and Conflict in Malabar 1900-1936.  
January, 1994, W.P.255
- D. NARAYANA** Government Intervention in Commodity Trade: An Analysis of the Coffee Trade in India.  
January, 1994, W.P.256
- K.J. JOSEPH, P. NANDAKUMAR** On the Determinants of Current Account Deficits: A Comparative Analysis of India, China and South Korea.  
January, 1994, W.P.257
- K.K. SUBRAHMANIAN, K.J. JOSEPH** Foreign Control and Export Intensity of Firms in Indian Industry.  
February, 1994, W.P.258
- PULAPRE BALAKRISHNAN, K. PUSHPANGADAN** Total Factor Productivity Growth in Indian Manufacturing - A Fresh Look.  
April 1994, W.P.259
- D. NARAYANA, K.N. NAIR** Role of the Leading Input in Shaping Institutions: Tendency in the Context of Irrigation Uncertainty.  
May, 1994, W.P.260
- G. MURUGAN, K. PUSHPANGADAN** Pricing of Drinking Water: An Application of Coase Two-part Tariff.  
December, 1994 W.P.261
- MOHANAN PILLAI** On the Mexican Crisis.  
December, 1995, W.P.262
- SUNIL MANI** Financing Domestic Technology Development through the Venture Capital Route.  
December, 1995, W.P.263

- T.T. SREEKUMAR** Peasants and Formal Credit in Thiruvithamcore: The State Institutions and Social Structure 1914-1940.  
December, 1995 W.P.264
- AMITABH** Estimation of the Affordability of Land for Housing Purposes in Lucknow City, Uttar Pradesh (India): 1970-1990.  
March, 1996. W.P.265
- K. PUSHPANGADAN, G. MURUGAN, K. NAVANEETHAM** Travel Time, User Rate & Cost of Supply: Drinking Water in Kerala, India:  
June 1996. W.P.266
- K.J. JOSEPH** Structural Adjustment in India: A Survey of Recent Studies & Issues for Further Research,  
June 1996 W.P.267
- D. NARAYANA** Asian Fertility Transition: Is Gender Equity in Formal Occupations an Explanatory Factor?  
October, 1996 W.P.268
- D. NARAYANA, SAIKAT SINHARROY** Import and Domestic Production of Capital Goods from Substitution to Complementarity,  
October 1996. W.P.269

<b>NEW SERIES</b>
-------------------

- W.P. 270 ACHIN CHAKRABORTY** *On the Possibility of a Weighting System for Functionings* December 1996
- W.P. 271 SRIJIT MISHRA** *Production and Grain Drain in two inland Regions of Orissa* December 1996
- W.P. 272 SUNIL MANI** *Divestment and Public Sector Enterprise Reforms, Indian Experience Since 1991* February 1997
- W.P. 273 ROBERT E. EVENSON, K.J. JOSEPH** *Foreign Technology Licensing in Indian Industry : An econometric analysis of the choice of partners, terms of contract and the effect on licensees' performance* March 1997
- W.P. 274 K. PUSHPANGADAN, G. MURUGAN** *User Financing & Collective action: Relevance sustainable Rural water supply in India.* March 1997.
- W.P. 275 G. OMKARNATH** *Capabilities and the process of Development* March 1997
- W. P. 276 V. SANTHAKUMAR** *Institutional Lock-in in Natural Resource Management: The Case of Water Resources in Kerala,* April 1997.

- W. P. 277 PRADEEP KUMAR PANDA** *Living Arrangements of the Elderly in Rural Orissa*, May 1997.
- W. P. 278 PRADEEP KUMAR PANDA** *The Effects of Safe Drinking Water and Sanitation on Diarrhoeal Diseases Among Children in Rural Orissa*, May 1997.
- W.P. 279 U.S. MISRA, MALA RAMANATHAN, S. IRUDAYA RAJAN** *Induced Abortion Potential Among Indian Women*, August 1997.
- W.P. 280 PRADEEP KUMAR PANDA** *Female Headship, Poverty and Child Welfare : A Study of Rural Orissa, India*, August 1997.
- W.P. 281 SUNIL MANI** *Government Intervention in Industrial R & D, Some Lessons from the International Experience for India*, August 1997.
- W.P. 282 S. IRUDAYA RAJAN, K. C. ZACHARIAH** *Long Term Implications of Low Fertility in Kerala*, October 1997.
- W.P. 283 INDRANI CHAKRABORTY** *Living Standard and Economic Growth: A fresh Look at the Relationship Through the Non-Parametric Approach*, October 1997.
- W.P. 284 K. P. KANNAN** *Political Economy of Labour and Development in Kerala*, January 1998.
- W.P. 285 V. SANTHAKUMAR** *Inefficiency and Institutional Issues in the Provision of Merit Goods*, February 1998.
- W.P. 286 ACHIN CHAKRABORTY** *The Irrelevance of Methodology and the Art of the Possible : Reading Sen and Hirschman*, February 1998.
- W.P. 287 K. PUSHPANGADAN, G. MURUGAN** *Pricing with Changing Welfare Criterion: An Application of Ramsey- Wilson Model to Urban Water Supply*, March 1998.
- W.P. 288 S. SUDHA, S. IRUDAYA RAJAN** *Intensifying Masculinity of Sex Ratios in India : New Evidence 1981-1991*, May 1998.
- W.P. 289 JOHN KURIEN** *Small Scale Fisheries in the Context of Globalisation*, October 1998.
- W.P. 290 CHRISTOPHE Z. GUILMOTO, S. IRUDAYA RAJAN** *Regional Heterogeneity and Fertility Behaviour in India*, November 1998.

- W.P. 291 P. K. MICHAEL THARAKAN** *Coffee, Tea or Pepper? Factors Affecting Choice of Crops by Agro-Entrepreneurs in Nineteenth Century South-West India*, November 1998
- W.P. 292 PRADEEP KUMAR PANDA** *Poverty and young Women's Employment: Linkages in Kerala*, February, 1999.

This work is licensed under a  
Creative Commons  
Attribution – NonCommercial - NoDerivs 3.0 Licence.

To view a copy of the licence please see:  
<http://creativecommons.org/licenses/by-nc-nd/3.0/>