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IN KERALA: RE-EXAMINING
THE ISSUE OF RURAL
GROWTH LINKAGES**

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**RURAL INDUSTRIALISATION IN KERALA: RE-EXAMINING
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ABSTRACT

The main purpose of our paper is to re-examine the role of linkages in a process of rural industrialisation (RI) deriving from the field experience in two purposively selected, newly emerging areas of industrial growth in an industrially backward state. While considerable evidence on survival of manufacturing activities in rural areas, particularly an agriculture-linked process of rural industrialisation, was not very encouraging, our perseverance arose out of (a) what we perceived as a rather narrow view of intra-spatial linkages in most of the studies taken up; and (b) the possibility of its greater potential in the sub region we attempted to study viz. the state of Kerala, marked by a relatively favourable rural infrastructure.

We argue that: (a) an excessive concentration on *agriculture* induced linkages has resulted in an underestimation of the potential of *rural* linkages for rural manufacturing. The fast growing service sector in rural areas and its demand for simple intermediate goods provides considerable scope for production linkages; (b) at the same time the relative importance of agricultural linkages very often tends to be swamped out by ‘urban’ indicators of rural diversification. The former could play a dominant role in generating non-agricultural employment in relatively isolated rural areas primarily through consumption linkages; and (c) the local capital linkage or indigenous entrepreneurship has been relatively underemphasised. Stimulating local initiative can facilitate a rurally-linked process of RI. There is a real (psychic) advantage for local entrepreneurs operating in a local environment which redresses to some extent the relative place specific disadvantages of rural locations.

Key words: rural industrialisation, rural non-farm employment, rural development, local linkages, rural growth linkages, entrepreneurship

JEL Classification : M13, O18, R12

I. Introduction

The issue of rural diversification, in particular rural industrialisation (RI),¹ has attracted considerable attention in recent years as a critical component of rural transformation in the less developed economies. It was in the context of a felt need for restructuring development strategies in the 1970s, while viewing the rural sector as having greater flexibility in generating employment and incomes, that rural industrialisation assumed importance. It was to be based on small-scale manufacturing enterprises induced primarily through intra-spatial linkages between rural manufacturing and the agricultural sector. The emphasis was on consumption linkages (though production linkages were not to be ignored) to tap the large rural market. While later evidence on the survival of manufacturing activities in rural areas, particularly an agriculture-linked process of rural industrialisation, was not very encouraging (Uribe-Echavarria, 1991; Saith, 2001), our perseverance arose out of: (a) what we perceived as a rather narrow view of inter-sectoral linkages within the rural space in most of the studies that were taken up; and (b) the possibility of its greater potential in the sub-region that we attempted to study, viz. the state of Kerala, marked by a relatively favourable rural infrastructure. The main purpose of our paper is to

1. The focus of this paper is on a process of rural industrialisation induced by a 'virtuous circle' of inter-sectoral linkages within rural areas generating rural growth. The sources of linkages and hence growth are spelt out later.

re-examine the role of linkages in the process of rural industrialisation deriving from the field experience in two purposively selected, newly emerging areas of industrial growth in an industrially backward state.

We argue that: (a) an excessive concentration on *agriculture*-induced linkages has resulted in an under-estimation of the potential of *rural* linkages for rural manufacturing. The fast growing service sector in rural areas and its demand for simple intermediate goods provides considerable scope for production linkages; (b) at the same time, the relative importance of agricultural linkages very often tends to be swamped out by the 'urban' indicators of rural diversification. The former could play a dominant role in generating non-agricultural employment in relatively isolated rural areas, primarily through consumption linkages; and (c) the local capital linkage or indigenous entrepreneurship has been relatively under-emphasised. Stimulating local initiative can facilitate a rurally linked process of RI. There is a real (psychic) advantage for local entrepreneurs operating in a local environment, which redresses, to some extent, the relative place-specific disadvantages of rural locations.

The paper is organised into four sections. In Section 1, we set out the context with a brief introduction of Kerala and a mapping of the growth of the rural non-agricultural sector in the state. A review of the "linkages" literature in Section 2, together with the available data, sets the stage for our field enquiry. The results of the survey are presented in Section 3 while inferences and policy implications are drawn in Section 4. The methodology is based on a contemporaneous, empirical approach deriving a framework of analysis from the existing literature. At an aggregate level, secondary sources of information are used to study the extent and nature of economic diversification, particularly towards manufacturing. The second and more insightful method adopted for

studying the major issue of linkages and their degree of “localness” is a field survey of a stratified random sample of rural small-scale enterprises (RSSEs) in a district of North Kerala, undertaken in the first half of 1996. Elsewhere we have shown that between 1971-91 growth of rural non-agricultural employment was highest in north Kerala (comprising of the districts of Palakkad, Malappuram, Wyanad, Kozhikode, Kannur and Kasargode) compared to south and central Kerala.² While most of the growth was in the tertiary sector, there was a small positive increase in rural manufacturing employment only in the north (Eapen 2001). A major reason for selecting a district in north Kerala was the possibility of capturing the tendencies, still taking shape, of the nature of linkages of rural industries. Palakkad, the district selected, is predominantly rural but has attracted considerable industrial investments in rural areas since the late 1980s and early 1990s. Our sample was drawn from the population of newly registered units (between 1990-95) in two development blocks. Data on these units was generated through a structured questionnaire attempting to identify the linkages of small-scale enterprises with different sectors of the rural economy.

Section 1

11. Kerala : Mapping the Rural Non-agricultural Sector and its Growth

Kerala is unique in many respects among the states of India. Historically, it was characterised by a high incidence of rural non-agricultural employment, particularly rural manufacturing, given its rich natural resource base. Some of these resources were processed into industrial goods, largely linked to external markets, even while the

2 In Central Kerala, the districts included are Ernakulam and Thrissur and the south includes, Kottayam, Idukki, Pathanamditta, Alappuzha, Kollam and Thiruvananthapuram.

state was faced with a food deficit (Aiya, 1906). Spatial formation in lowland and midland Kerala is marked by a diffused settlement pattern with a mix of agricultural and non-agricultural activities, described as “*gragara*” (‘*gram*’ and ‘*nagar*’), confounding rural-urban boundaries (Casinader, 1994). The designated rural areas have comparable (to urban) levels of social and economic infrastructure (Franke and Chassin, 1991). Coupled with the high population density, the average size of a village is much larger in Kerala (than in all-India) (Sreekumar, 1993) creating the advantages of agglomeration and proximity. An area of major concern in its transformation process pertains to the declining fortunes of the traditional industrial production base and the inability of the state to develop and diversify its industrial sector. In recent years, however, there has been a fairly rapid growth of the non-factory, non-household, ‘modern’, small-scale manufacturing sector in the state, located largely in the rural areas, which is the focus of our enquiry.

1. The Evidence

Definitions and Data Limitations

Earlier literature on rural non-farm employment (RNFE) often focused exclusively on designated rural areas; however, with growing evidence of the considerable functional relationship between villages and small towns, later studies adopted a wider definition of the term ‘rural’. The difficulty in delimiting rural and urban is brought out sharply in the context of Kerala, given its peculiar spatial formation, which has had a considerable impact on its process of urbanisation. To a larger (than all-India) extent, the latter occurred through the diversification of the rural occupational structure, which, being large enough, transformed these areas into ‘new’ towns. While it is true that within rural non-agricultural employment, the growth of the tertiary sector was more rapid, these ‘new’ towns also reported a high proportion of workers in

manufacturing. It would therefore be interesting, in our attempt to explore the potential for rural industrialisation, to map this process of transformation by using the ‘continuous’³ method in estimating spatial changes in the occupational structure.

It is well known that the two major sources of data on workers and their industrial distribution in India are the Population Census and the various Rounds of the National Sample Survey Organisation (NSSO), neither of which is free from problems relating to an analysis of longitudinal changes. While the relative advantage of using the NSS data has been well-established, we have used the decennial census as the basic source of information, since it gives the spatial and industrial distribution of workers not only by broad rural-urban categories but also by a further disaggregation of urban centres into the size-class of towns.⁴ The latest Census, which gives the relevant information is that

3 Spatial growth can be estimated by the ‘continuous’ or ‘instantaneous’ method. In the first, rural areas and towns are classified according to the size of the population at one point of time, and the same set of units belonging to a particular class of locality are compared over time. In the second, 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.

4 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 the urban areas have to satisfy.

of 1991, and the earlier Census, which can be compared with it, is the 1971 Census since our analysis will be in terms of ‘main’ workers.⁵ The under-estimation of female workers who constitute an important segment of the “marginal” workforce is a serious limitation.

We collate the information on the industrial distribution of the workforce for rural, small towns and large urban units, including urban agglomerations (UAs)⁶ as they were defined in 1971⁷ and trace these through to 1991. For instance, all those settlements that were designated as ‘rural’ in 1971 are treated as rural in 1991 though some may have become small or medium towns. A similar pattern is followed for the different size class of towns. Our attempt is to capture the *pace* of diversification, in particular the growth of rural manufacturing, across space. The evidence is presented in Table 1, which gives the annual growth rates of employment for the period 1971-1991 by industry groups across three spatial categories — rural, small towns, large urban units,

5 The 1971 Census adopted the concept of main activity, that is the activity in which he/she is mostly engaged, which was restrictive vis-à-vis the 1961 definition. Since the size town-wise information on the industrial distribution of the workforce is available only in terms of main workers, and not for ‘marginal’ workers in 1991, we focus on the 1971 and 1991 Censuses.

6 An urban agglomeration is a continuous urban spread consisting of a city/big/medium town (or contiguous towns) and its (their) adjoining urban outgrowth.

7 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.

viz. cities (including UAs), and big and medium towns (CBM), which were considered together.⁸

From the table we observe that the growth of employment in rural areas was lower than in urban areas. However, within the rural sector, non-agricultural employment has grown at a higher rate (almost 2.5 per cent per annum) than the agricultural growth rate (0.5 per cent). The growth of employment in the tertiary sector was much higher than in manufacturing for all locations. What is pertinent for us is that while for the state, as a whole, employment in manufacturing grew at about 0.8 per cent per annum, it was marginally higher in rural areas and as high as 3.2 per cent in small towns; the growth in non-household manufacturing too, was higher in small towns and rural areas. In cities, and big/medium towns, the growth of employment in manufacturing was as low as 0.5 per cent. Of the total increase of about 226,000 persons employed in manufacturing between 1971-91 (which constituted around 10 per cent of the increase in all workers), almost 78 per cent was concentrated in the rural areas. Women accounted for over 54 per cent of the increase (computed from the data).

These differential growth rates across industry group and type of location have impacted the occupational structure in the state as can be seen from Appendix A. There was a significant expansion of non-agricultural activities in rural areas, from a little over one-third of the

8 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. These three spatial categories 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. A similar procedure has been followed for small towns and the medium/big towns and cities.

workforce in 1971 to almost half by 1991. 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. This resulted in a “ruralisation” of small towns, despite the high growth rates in manufacturing. As pointed out elsewhere, frequently small towns absorb rural trends from surrounding hinterlands (Lindert and Verkoen, 1997). The large urban settlements showed a more stable occupational structure; the shift towards non-agriculture was marginal, viz. from 82 per cent to 83 per cent. However, its composition changed to some extent with a shift away from manufacturing and a further increase in the share of the service sector; trade and commerce alone accounted for almost one-third of the increase in total employment in CBM over the period 1971-91.

Hence structural change was not accompanied by an increased concentration of non-agricultural employment in large urban settlements. Manufacturing, in particular, tended to get located in rural areas or small towns. The gap in the proportion of non-agricultural employment between rural areas and CBM is lower in 1991; however, it is really between the small towns and rural areas that the distance has narrowed dramatically. Manufacturing activity in the state continues to be dispersed as was found in an earlier study for the period 1961-71, by Kundu and Raza (1982). The fact that it is also small in size is revealed by a glance at the size structure of manufacturing in Table 2, estimated in terms of employment. There is a continuing growth in non-household, non-factory manufacturing activity, which accounts for about 60 per cent of the total employment in manufacturing. While we could not separate the rural segment by size structure, (since factory level data are not disaggregated by region), the preceding tables confirm its rural/small town concentration. As stated earlier, diversification was most rapid in North Kerala (data not shown here), which accounted for the larger proportion of ‘new’ towns in 1991 (Eapen, 2001).

Section 2

111. The Issue of Linkages: An Overview

While Hirschman (1958) had developed the concept of production linkages as inducement mechanisms for stimulating economic activity through backward and forward linkage effects, he had dismissed agriculture as a sector with very little linkage potential in the developing economies, primarily due to its backwardness. However, in the light of the emerging emphasis on a relatively endogenous process of rural industrialisation, attention was drawn to the potential linkages that could be generated by a rapidly growing agricultural sector. Of particular importance was the expenditure-linked multiplier effect of growing agricultural incomes, viz. consumption linkages, in generating rural-based, small-scale, labour-intensive industries, highlighted by Mellor (1976) in his “new strategy of agriculture-led growth”, which evoked considerable controversy. It primarily revolved around: (a) the primacy of agricultural growth in inducing RNFE; (b) the relative strength of consumption linkages; (c) the investment behaviour of large cultivators; and (d) the location, scale and nature of RNFE generated through growth in agricultural incomes.

1. Sources of Rural Linkages

Any industrial activity, regardless of whether it is related to agriculture or not, can be linked to the rural region through four types of linkages that are self-explanatory. (For a more elaborate discussion on the nature of these linkages, see Johnston and Kilby, 1975; Mellor, 1976). These are:

- * *Backward production linkage effects*—These linkages focus on inputs, both intermediate and capital goods, required by the unit, which may be in the nature of processing of a number of

agricultural crops or intermediates from other rural industrial units;

- * *Forward production linkage effects*—These refer to output utilisation of the activity if it does not cater to a final demand. This could largely be in the nature of the input requirements of agriculture.
- * *Consumption linkage effects*— These effects, viz. the demand for consumer goods from both agricultural as also non-agricultural households, have been stated to be quantitatively the most important: and
- * *Capital and labour linkages*—One of the important linkages in the context of rural industrialisation is the utilisation of local resources such as rural capital (which may otherwise be siphoned off through the financial institutions), and unemployed and under-employed labourers from agricultural or other households.

In Mellor's framework, the underlying growth mechanism was the effect of an efficiency increasing technological change in agriculture (assumed to be exogenously given) directed at the larger cultivators, which could lead to a substantial indirect growth in non-farm employment and incomes through the linkages discussed above. Now what was the empirical validity of the model in inducing the growth of (rural) small-scale industries across developing economies?

The “Rural Growth Linkages” Controversy

Considerable research was inspired by Mellor's work on rural growth linkages. Attempts were made to investigate the links between agriculture and non-farm activities by measuring the indirect impact of agricultural growth, induced by large agricultural development projects (mostly internationally funded). The strength of the growth linkages

was estimated by examining consumption patterns and expected changes in consumer demand through changes in income and its distribution (Bell *et al.*, 1982; Hazell and Roell, 1983; Ahammed and Herdt, 1984; Deb and Hossain, 1984; Haggblade *et al.*, 1989; Hazell and Hojjati, 1995). The regional growth multipliers estimated were very significant; for instance, Bell *et al.* (1982) found for the Muda Irrigation Project in Malaysia, that one dollar of value added generated directly by the project induced a downstream effect of 0.80 cents. However, the growth multipliers varied across different regions; they were higher in Asia (0.80) as compared to Africa (0.40).

Supplementing these studies based on household consumption expenditures, large-scale field surveys of rural small-scale enterprises in a number of developing economies were undertaken since the latter half of the 1970s in an attempt to understand their linkages, particularly with agriculture. The evidence thrown up by these surveys, though not very extensive, suggested considerable linkages between agriculture and small-scale rural enterprises, particularly consumption linkages, and the main source of dynamism identified was agricultural growth (Ho, 1980; Chuta and Liedholm, 1985; Liedholm and Mead, 1987; Bagachwa and Stewart, 1990; Ranis, 1990).

In India, studies differed in their understanding of the role of a technology-induced agricultural growth in the diversification of the rural economy, particularly in terms of the spread of small-scale manufacturing. Rangarajan's study (1982) found a link between agricultural performance and industrial growth, particularly of consumer goods industries at an aggregate level without focusing on location. However, micro-level studies for some regions, which also attempted to trace the spatial location of the growth of industries, attributed only a partial role to agricultural growth in inducing the diversification of the

rural economy. The studies of Harriss and Harriss (1984) and Harriss (1991), based on village fieldwork in 1973-74 and again in 1983-84, and surveys of a market town in the district of North Arcot in Tamil Nadu, a region of the Green Revolution, concluded that “the economic diversification that has occurred can only partially be explained in relation to agricultural growth”. It was linked more to the growth of the public sector and of an urban industry, which was independent of the growth of agriculture. Papola’s (1987) detailed study on Uttar Pradesh (UP) included a field survey of two districts, one located in an agriculturally fast growing region of Western UP, and the other in an agriculturally less developed and slow growing region of Eastern UP. It was found that there was hardly any relationship between agricultural development and rural industrial activity in terms of magnitude or composition. However, a high rate of agricultural growth appeared to improve the productivity of rural industries.

Almost all the empirical research on the subject had found household expenditures for consumption purposes to have significantly stronger multiplier effects within the local economy. However, the policy focus on large farmers as the most appropriate vehicle of delivering the strategy suggested a naive faith in the ‘trickle-down’ mechanism of the benefits of agricultural growth (Saith, 1992). Whether the large farmers had the most desired consumption patterns for growth of local non-agricultural activities was an empirical question. The study by Hazell and Roell (1983) found that the households operating the larger farms had the most desired expenditure behaviour in terms of locally produced, labour-intensive goods. However, evidence from the Green Revolution region of Punjab, based on a survey in the mid-1970s across three agro-climatic regions, revealed that the quantitative significance of this demand depended on the nature of the agrarian structure (Dunham, 1991). The large and the largest farmers were not the dominant source of

demand for non-food goods and services except in the region where large farms were very dominant. Nor was there any automaticity in the translation of an “appropriate” pattern of demand into the generation of local, small-scale, labour-intensive enterprises (Hart, 1989; Saith, 1992). The desired results were derived from the way in which consumption patterns across different deciles were assessed (Harriss, 1987). For instance in the Bell *et al.* study (1982), the demand claimed to be for locally produced goods and services was, in fact, for the local services of wholesalers and retailers of goods produced elsewhere. Also, the assumption of perfectly elastic supplies of locally produced goods inflated the consumption multiplier (Harriss, 1987). Even if the model were made to be more elaborate in order to incorporate the impact of less than perfect supplies of local consumer goods, the question would be more of the inducement to invest, which the studies did not deal with in depth (Hart, 1989). On the whole, the household expenditure surveys appeared to confirm that consumption linkages were stronger with rural services (Haggblade *et al.*, 1989), or the food sector itself, primarily livestock and horticultural products (Hazell and Hojjati, 1995), rather than rurally manufactured goods. An assumption critical to Mellor’s argument was regarding the investment behaviour of those prosperous farmers who would save additionally from the increased incomes, which was perhaps critical to the issue of the self-sustained growth of rural regions by promoting small-scale local enterprises (Hart, 1989). However, the evidence on the investment pattern of the larger farmers failed to conform to expectations. Even in the Muda region, where considerable rural incomes were generated, the study by Bell *et al.* (1982), revealed that there was huge and increasing capital outflow in search of investments elsewhere. Dunham’s study on Punjab suggested that the growth of the small-scale industrial sector was not prompted by the increase in agricultural savings induced by the Green Revolution. In

fact, there appeared to be an outflow of savings from the Punjab to other parts of the country (Dunham, 1991). Similar conclusions, that the growth of industry could not be linked to the savings of the agriculturists, were also reached for the North Arcot district (Harriss and Harriss, 1984). However, some other studies in South and Central Gujarat (Rutten, 1991) found that agriculture, trade and industry are very closely intertwined in these regions.

The above review of the empirical evidence on a linkage-induced process of rural industrialisation reiterates our earlier fears regarding an over-emphasis on agriculture, both as the prime source of dynamism in the rural economy, and in sustaining its growth. A possible reason for the high agricultural growth multipliers estimated within the Mellor framework could be the manner in which the region was selected to study the impact, viz. by excluding any other source of inducement. We have argued elsewhere (Eapen, 2001) that the location of the rural region is of considerable importance in determining the linkages that promote occupational diversification. Agricultural growth could provide a stimulus in geographically isolated areas while it would be weak in villages near the urban centres. As Papola concluded in his study (1987), RI need not be viewed merely as an adjunct to agricultural growth but as an independent element of a strategy for generating non-agricultural employment and incomes in rural areas. The service sector can act as a source of dynamism. It was against this critique of the literature on rural growth linkages that we attempted to re-examine the issue of linkages by drawing insights from a field survey of small-scale enterprises in two different locations with apparently different types of linkages.

Section 3

1V: The Field Survey and its Findings

As stated earlier, Palakkad a district in North Kerala, which was selected for the field survey, has emerged as a potential area for industrial

development (Kerala Industrial and Technology Consultancy Organisation, 1994; Mathew, 1996). Within the district two development blocks were purposively selected, guided by our desire to capture the possibly different types of linkages displayed by the newly set-up small-scale units: one a dominantly agricultural block, Kollengode (K) wherein we would expect the intensity of local agricultural linkages to be high and the other, Malampuzha (M), which witnessed a sharp growth in small-scale units in rural areas. Some of the rural settlements have become part of the Palakkad urban agglomeration which is also contiguous to the industrial city of Coimbatore in the state of Tamil Nadu. Such units would have stronger external linkages.⁹ Both these blocks also showed the highest increase in number of small-scale units between 1990-95. The survey was also used to explore the role of local capital and entrepreneurship in generating relatively higher developmental links with the rural sector. While we do not claim that this case study represents Kerala or India, it certainly throws up certain processes and patterns of relationships that have a wider relevance.

The difficulty in procuring information on the universe of small-scale units, a large proportion of which fall outside the purview of official agencies, is well-known. The closest that we could get to the units we wanted to capture in the study, viz. relatively independent, private entrepreneurs in rural areas who operate manufacturing and processing units on a small scale, was through an examination of the District Industries Centre (DIC) data. A list of newly registered units in rural areas between 1990-95, with a permanent registration from the DIC, was

9 One of the panchayats in Malampuzha, Pudussery particularly the area known as Kanchikode, borders Coimbatore and has also been the focus of considerable Government initiative for the promotion of industry, which has had a considerable impact on the structure of small-scale industries in that region. The growth in manufacturing has been the highest in Pudussery during the period 1971-91.

drawn up for the two blocks giving information on the location of unit, nature of activity, investment and employment. There were about 315 units registered in the five panchayats of K block, and 342 in the eight panchayats of M block, accounting for over two-thirds of the total number of units registered during this period in the district as a whole.

This set of newly registered units stratified by product group, and arranged year-wise from 1990-95 onwards, in the two blocks, constituted the frame from which the sample was drawn, 62 from K and 68 from M, that is a total of 130 units. The sample in M included 10 enterprises located in an Industrial Development Area (IDA) in Pudussery panchayat. We would like to state here that our primary interest was to understand the pattern of linkages of these small-scale units with the rural sector rather than to derive rigorous quantitative estimates of the economic parameters for the underlying population. Hence, in respect of the relationships that we discern and the inferences that can be drawn, our study has a wider application.

1. Findings from the Survey

A Profile of the Units

A number of studies have drawn our attention to the heterogeneity in the organisational form of rural small-scale units. However, given the size of our sample, we have not attempted too fine a differentiation, and have followed a commonly adopted two-fold classification of units: the household form or Lipton's (1984) "family enterprise" units (FEs), and the non-household form or small-scale units (SSUs), which range from the smallest to more modern units organised along capitalist lines. The distinction is made primarily on the basis of the type of labour used, whether largely family or hired labour. The 10 units located in the Industrial Development Area were treated as a separate category since these units were relatively 'large' small-scale units.

A brief resume of the basic information collected shows that: (a) there is a relatively large proportion of family enterprise units in Kollengode (40 per cent) vis-a-vis Malampuzha (28 per cent), though in both the regions the non-household form dominated; (b) there is an overwhelming concentration of units at the lower end of the small-scale spectrum, whether one uses employment or capital invested in plant and machinery as a measure of size¹⁰ (similar to findings in most other studies). In fact, the tiny or “dwarf” units employing upto 4 or 5 workers and a capital investment of upto Rs.5,00,000, constituted a significant proportion, particularly in K: over 60 per cent compared to less than half in M. The IDA units are much larger in terms of the number of workers and the capital invested. For instance, almost two-thirds of the units have an investment of Rs.25,00,000 and fall in the 10-plus workers group; (d) there are differences in the product structure between the blocks, but what is more interesting is the intra-product group differences across the size class of investment in plant and machinery. In Kollengode, units producing agriculture and natural resource-based consumer products like rice and oil, bakery items, sweets and snacks, ready-made garments, wooden furniture and bricks, dominate. In Malampuzha block, over half the units come under the metals and machinery product group. While the share of such industries is not insignificant in K, the difference lies in the nature of activity which is relatively simple and uses much lower fixed capital equipment; (e) in respect of the location of these units in terms of the distance from the nearest town, there is no doubt that the mean distance of most of the panchayats from the nearest town is higher in Kollengode block (16 kms) than those in Malampuzha (9 kms).

10 Generally a size consisting of less than 10 workers is considered to be small. The definition in terms of investment in plant and machinery has been varying in the Indian context: in the 1950s, it was Rs.500,000; by the late 1980s, it had risen to Rs. 6 million.

We now explore the inter-linkages of these enterprises with the agricultural-rural sector first in terms of capital and labour, and then the production and consumption linkages.

2. Social Origins of the Entrepreneurs

To what extent do the rural entrepreneurs have agricultural origins, or more generally, rural social origins? We attempt to answer this question by examining: (a) whether the area of operation is the place of birth of the owner; and (b) whether the entrepreneur's own or his father's prior occupation was farming or related activity.

(a) Area of Operation

While in Kollengode all the proprietors operated in the area where they were born, this proportion was not as high in Malampuzha (Table 3). About 15 per cent of the entrepreneurs in Malampuzha were non-local, hailing from other parts of the district, primarily the city of Palakkad, other parts of the state or outside the state. All the entrepreneurs operating in the IDA came from outside the region, about 10 per cent from outside the state. It may be noted that 'local' is defined in terms of panchayat and block, while 'non-local' covers all locations beyond the block. While we are aware of the limitations of too narrow a definition of 'local' we did not want to broaden it too much to the level of taluk or district. Perhaps for planning a strategy of rural industrialisation we would have to operate at different levels of 'localness' for different types of industries.

While it is true that the geographical mobility of small entrepreneurs is not very feasible, the fact that a substantial majority of the owner-producers operated in their area of birth in both the blocks, since it was their home, reflects the real subjective value which local entrepreneurs attribute to being in their own environment. This redresses

to some extent the relative locational disadvantages of rural areas in terms of setting up of non-agro-based industries. However, such entrepreneurship is only slowly emerging in this area. The highest proportion of units owned and operated by local entrepreneurs was found in the agro-natural resource-based industry groups such as food, clothing, furniture, leather and rubber products. Most of the non-local entrepreneurs were operating in the metals, machinery and chemicals group. The relationship between product group and origin of entrepreneur, (data not shown here), was found to be statistically significant.¹¹

(b) Father's Occupation

About one-third of the sample entrepreneurs in Kollengode and a little less in Malampuzha came from agricultural households: the entrepreneur's father is/was a cultivator or an agricultural labourer (Table 4). Since approximately 60 per cent of the rural households in Palakkad were agricultural households (Commissionerate for Rural Development, 1995), it is evident that a much larger proportion of entrepreneurs in our region came from non-agricultural households. In Kollengode, the most dominant non-agricultural occupation of the father was 'business' (30 per cent of the units) followed by 'employee or employer in similar or other small/medium/large industry' (SMLI). In Malampuzha, it was the other way round, that is, the 'employee or employer in similar or other SMLI' was the more dominant father's occupation, accounting for over a quarter of the entrepreneurs, followed by business and services.

Again, very few entrepreneurs, viz. less than 15 per cent in K and a marginal proportion in M, were themselves engaged in agricultural activity prior to setting up the unit (data not shown here). Here too, the

11 The Chi-square test of independence was significant at the 5 per cent level.

connections were closer between business or having worked in a similar SMLI and industry. Having worked as wage or salaried workers in industrial units or business and gaining some experience with the trade prior to starting the unit, is perhaps the most prevalent method of skill formation and resource generation for small scale entrepreneurs.

3. Place of Origin of the Workers

One of the major concerns of rural industrialisation is the generation of employment opportunities for the local workforce, be they under-employed labourers or the rural unemployed seeking work. It is this rural linkage that has a direct bearing on the living standards of the rural poor. Hired workers or wage labour dominated in both the blocks, accounting for almost two-thirds of the workers in Kollengode, and over 80 per cent in Malampuzha.

While in Kollengode, the overwhelming majority of the units (over 90 per cent), employed local labour only, in Malampuzha, it was 70 per cent. About 30 per cent of the units in M also hired workers who commuted from other parts of the district or neighbouring district; in three units, workers from outside the state were hired on a contract basis. In the IDA over 40 per cent of the units used labour from outside the state (Table 5). What is interesting to note is that non-local labour¹² in the Malampuzha block was largely employed by the units whose proprietors were non-local. Of the nine entrepreneurs, who originated from outside the block, eight of them employed labour from other parts of the district/state and outside the state. Some of the local entrepreneurs also hired non-local labour which appeared to be on account of strong

12 We were unable to procure the exact break-up between local and non-local labour for units using both, since entrepreneurs did not appear very keen to give the actual numbers of labourers employed from outside.

links with the non-local region, in particular the neighbouring state of Tamil Nadu, or other parts of Kerala, either through marriage or related industrial and business interests. The close association between non-local entrepreneurs and non-local labour is statistically significant.¹³

The employment of non-local labour by non-local entrepreneurs should not appear surprising in the context of an under-developed labour market, particularly for the small, unorganised sector, where personal knowledge and contacts still play a significant role in securing employment. Perhaps the entrepreneur is keen to have a core of loyal workers from his/her own region and create a more conducive environment for work. While the lack of requisite skill at the local level was very often stated as the rationale for employing non-local labourers, the evidence relating to this premise did not appear to be very convincing in some cases.

To sum up, while the vast majority of proprietors were rural in terms of operating in the (rural) area of birth except in the IDA and to some extent in the rest of Malampuzha block, less than one-third came from agricultural households and an even lower proportion were agriculturists themselves prior to setting up the enterprise. Similarly, local labour dominated in the two blocks; however, non-local entrepreneurs tended to employ non-local labour. Two striking implications of these findings are: (a) rural industries need not necessarily be set up by agricultural households; and (b) rural developmental linkages tend to be higher in the enterprises set up by local rural entrepreneurs.

13 The Chi-square test of independence is significant at the 5 per cent level. With respect to the IDA units, all the entrepreneurs were non-local and 70 per cent of them employed non-local labour.

4. Production Linkages

(a) *Backward Production Linkages (BPL)*

Given the differences in product structure between the two blocks, it is evident that a larger number of units in K would be using agricultural/natural resource-based material inputs, which would generate a backward production linkage with agriculture. Over two-thirds of the SSEs in Kollengode are agriculture or natural resource-based, while in Malampuzha, the corresponding proportion is about 40 per cent. Backward production linkages with agriculture are certainly high in K but in terms of sourcing of materials, the percentage of units depending on local sources is smaller, 52 per cent (Table 6). Besides paddy and copra which are procured locally by the processing units, raw materials for other agro- and natural resource-based industries, like ready-made garments, handlooms, rubber products and cane furniture are obtained almost entirely from outside the state. The units which fall in the chemicals group like soap-making, plastic furniture, toys, buckets and components, or the engineering group making simple equipment, purchased their materials from Palakkad or from outside the state.¹⁴

From the similar data for Malampuzha, it can be observed that less than 20 per cent of the agro- natural resource-based units had BPL with local agriculture. Even within the food sector, the intensity of local raw material use is low since the bakeries or units making sweets and snacks depend on Palakkad for materials like wheat flour, sugar, etc. As

14 The categorisation in respect of production and consumption linkages has been done in terms of 'mostly local' and mostly 'non-local'. It is based on whether more than 70 per cent of the raw materials are bought or the output sold. In case the percentage is less than 70, say 65:35, the categories 'local' and 'non-local' are used. Within non-local, the same principle holds and in fact, we elicited the dominant practice in case more than one non-local location was stated. Needless to state, these limits are arbitrary and used as broad guidelines.

in the case of Kollengode, most garment and tailoring units procured their materials from outside the state. The fact that raw material supplies came from outside the state for brick-making units is because one of the hollow concrete brick-making units (of which there are a few in this region) procured rock powder and cement from Coimbatore. Similarly, the small-scale cement unit in our sample needed to purchase clinker and gypsum from outside the state. It needs to be noted that the hollow brick-making unit was obtaining cement from outside despite the fact that two cement-making units, one large and the other small-scale, operated within this particular panchayat.

The interesting feature in Malampuzha block was the overwhelming dependence of the non-agriculture based SSEs on the supply of raw materials from the neighbouring state of Tamil Nadu, especially among the IDA units. The highway connecting the town of Palakkad and the bigger city of Coimbatore runs through this region and is hence well located for the import of materials from Coimbatore. Almost 33 per cent of the units in Malampuzha, excluding the IDA units (as compared to 16 per cent in Kollengode), were strongly outward-oriented in raw material purchase. The pattern of sourcing raw material purchase among the IDA units showed that raw material was procured almost entirely from outside the state, primarily from Coimbatore, even in respect of the units producing food products. Hence the spread effect of these units in terms of raw material sourcing was nil; in the previous chapter, we also noted their weak labour linkages.

(b) Forward Production Linkages (FPL)

This linkage has considerable potential but has been under-emphasised in view of the major concern shown by the rural growth linkage literature to explore forward production linkages with agriculture. Since fertilisers, followed by agricultural equipment and

then building materials, are identified as major production inputs into agriculture, and pump-sets in irrigated areas (Johnston and Kilby, 1975), which are primarily urban/import oriented, this is not surprising. Of course, with the growth of irrigation, the production of pump-sets is a commonly found rural small-scale industry as also are units producing simple farm equipments. Besides, repair services, for instance, for tractors, pump-sets or other equipment would also represent a forward linkage; however, these perhaps do not always add up to a very significant proportion of farm investments. There can be linkages with other sectors of the rural economy like services such as trade and commerce, hotels, transport, education and health; industry, especially in terms of a sub-contracting relationship (which has drawn considerable attention), and construction, which can induce the setting up of diverse local small-scale industries.

Of the 62 units in K, about 37 per cent had forward production linkages with other sectors in the rural economy; however, less than 10 per cent of these units were linked to agriculture. In Malampuzha, a little less than two-thirds of the units had forward production linkages of which over 10 per cent had linkages with agriculture. We have defined FPL rather broadly, not in terms of the supply of some critical product or intermediate good but as including any auxiliary item also that facilitates the production process in the purchasing sector (see Table 7).

A significant linkage in rural areas was with construction and building activity, reflected in the fairly large number of brick-making units, engineering units producing gates and grills, a saw milling unit and a unit producing PVC pipes and fittings. Four other units were linked to industry in simple ways. These were producing plastic granules and components, and steel brushes for cleaning machines while one of the coir units produced yarn for the weaving sector. We noted some

interesting forward production linkages with the service sector, for instance with:

- “Trade”: printing units making letter heads, receipt books and other stationery for shops and companies and another coir unit making yarn for packaging;
- “Education”: creating a demand for copy books from the printing units;
- “Health”: a rubberised coir unit making mattresses for institutions including hospitals; and
- “Petrol and service stations”: a unit making distilled water for them.

In Malampuzha, given the large number of sub-contracting units, the forward production linkages with industry were important. Over half the units were linked to other industries. As in Kollengode, the brick-, gate- and grill-making units had forward links with the construction sector. There was also a unit producing cement and another making barbed wire for fencing. The interesting links were again with the service sector; the printing units were linked with trade and education. One unit that was doing very well was producing gas stoves for hotels and other institutions; another was making trailers for light commercial vehicles for transporting small loads.

In terms of the location of demand, or in other words, how local the forward production linkages are, we find that for over half the units in Kollengode, which had forward production linkages, the market was largely local. The proportion rose to almost three-fourths of the units if the district was included in local whereas only 4 per cent had a demand outside the state.

While in Malampuzha the proportion of locally oriented units was only marginally lower than in Kollengode, the number of units with

a strong outward orientation was higher at 8 per cent. Of the total number of units located in the IDA, one-third were linked to external demand (data not shown here). It may be noted that of the 13 units in both Kollengode and Malampuzha (including the IDA) with links to the service sector, a little less than half catered largely to local demand and a similar proportion to both local and non-local demand.

The attempt here is not to make a virtue out of the extent of local forward production linkages. However, we would like to emphasise that their existence implies a greater cognisance of local rural demand in investment decision making which is more feasible for local entrepreneurs. While the entrepreneur does think beyond the immediate market, a local perspective would influence the nature of activity undertaken by him and enhance the possibility of larger local linkages. From the above evidence, it appears that local forward production linkages in terms of the number of units, are not insignificant in our survey region.

5. Consumption or Expenditure Linkages

In this section, we examine the location of the market for consumer goods being produced by the remaining units in both the blocks. Products which fall under the investment demand of households, for example housing, in terms of bricks, cement, gates and grills, etc., have been considered as intermediate inputs for the construction sector; their market location was found to be largely local. The products covered in this section are consumer goods, primarily food products, oil, beverages, clothing, furniture, leather products, consumer plastics, toys, soap and other miscellaneous household articles. Consumption linkages were found to be quantitatively the most important in the rural growth linkages literature. The results from our own survey confirm this finding, though in a somewhat weak manner.

It is evident from our preceding discussion that more units in Kollengode as compared to Malampuzha would be engaged in the production of consumer goods: over 60 per cent produce goods for household consumption in K, and in M such units account for a little over one-third of the sample units. However, it is the market location of the output of these units in each region which is of interest to us (Table 8). The table shows that over half of these units cater to local markets in K and M. However, the proportion of externally oriented units is higher in Malampuzha as compared to Kollengode.

The degree of local linkage seems to be closely related to the type of enterprise and, to some extent, to the type of product. Over two-thirds of the units (taking the two blocks together)¹⁵ catering to the demand within the panchayat and block are organised as FEs; those units whose market lies beyond the local region, particularly beyond the district, are largely organised as SSUs. This certainly suggests the petty nature of FE production, supplying simple consumer goods and services. However, certain modern services, like photocopying or computer services, organised as FEs, can be fairly capital using. In terms of product group, clearly the food group within which the products with a shorter shelf life (such as bakery items, sweets, juice) or convenience of transporting (milling of copra or flour) and which therefore cater to small, dispersed markets, are the most locally oriented in both the blocks. However, what is interesting is that most units do cater to a market beyond their immediate environment.

15 Since the total population of small-scale units was not very different between the two blocks and the sampling proportion was the same for both the blocks, we can combine the units.

6. Consumption Linkages versus Production Linkages

Consumption linkages are indeed high in both Kollengode and Malampuzha. While about 60 per cent of the units in K and 56 per cent in M, which produce consumer goods and services derive their demand primarily from the local region, these proportions were 52 per cent and 17 per cent for units with local BPL, and about 52 per cent and 42 per cent for units with local FPL, respectively. Backward production linkages are very weak in Malampuzha. The data on the three types of linkages are presented in Table 9. The percentages under the different types of linkages indicate the number of units (and employment) with a local orientation for each type of linkage to the total number of units displaying that linkage. IDA units are included in the Malampuzha block.

The relative importance of local FPL in both the blocks is brought out by the table, within which we had already noted the higher incidence of such linkages with non-agricultural sectors of the rural economy. A highly striking feature of the table is the data on employment. If we look at the proportion of employment accounted for by the units that have strong consumption linkages, it is much lower than their proportionate numerical strength. This is primarily because most of these units are family enterprises or smaller SSUs (employing 2-4 workers). In terms of employment then, production linkages are more important in Kollengode, while in Malampuzha, it is the forward production linkages that generate a higher percentage of employment. It is in this sense that consumption linkages are weak.

Section 4

V. Conclusions and Some Policy Implications

In this paper, we have attempted to focus on certain aspects of rural industrialization, which had either not drawn adequate attention

due to excessive emphasis on others, or had been under-emphasised in the studies conducted. Local linkages of all types of rural SSEs were found to be of significance in our region of study. Interestingly, it was found that very few units are completely locally oriented and it did not even appear very necessary to be so. Indeed the well-cited advantage of rural small-scale enterprises utilising local raw materials is not so critical; a major problem for rural industrialisation lies in attracting non-agriculture based industries to a particular rural area that is at a relative disadvantage as compared to its urban counterpart in terms of location factors. The relative "shyness" of agricultural capital to venture into manufacturing activity, which has been found in our sample too, has, to some extent, to be understood in this context. The social background of the entrepreneur in terms of the father's occupation plays a significant role in the decision to diversify and in the choice of activity undertaken. Some familiarity with the activity in terms of the experience acquired either through familial contacts or by working in a related unit appears to be an essential first step in setting up a small-scale enterprise. It was not surprising that local investment by agricultural households, emphasised by Mellor, was found to be empirically weak. Hence the question of local entrepreneurship remained under-emphasised.

We attempted to highlight the role of local entrepreneurs since a critical issue is whether such units are able to generate at least other than raw material linkages (which were found to be low), or spread effects with the rural sector in terms of either labour or the product market. Apart from the psychic advantage of operating in one's own environment in the development of local economic activity, our survey revealed that local entrepreneurship tended to ensure higher local labour absorption as also a greater cognisance of rural demand conditions in investment decision making. In this sense, perhaps it can be identified as having the strongest developmental linkage with the rural sector. Units operated

by non-local entrepreneurs, for instance in industrial developmental areas, display negligible local linkages. While their raw material supplies are procured almost entirely from outside, the market location of their output is similarly outward-oriented, sometimes even completely exported. These are also the units that tend to use non-local labour.

Location plays an important role in determining the type of diversification and the nature of linkages generated. The emerging spatial structures with the rural-small town nexus, on the one hand, and the urban agglomeration-rural hinterland combine, on the other, implies differences in the character of rural industry and its linkages. In the former, the process of growth of rural industries is relatively endogenous responding largely to extant rural conditions in which agriculture-induced linkages play an important role. On the other hand, in villages which become part of an urban agglomeration, the growth of small-scale enterprises tends to respond more to exogenous factors. Large urban-based units often sub-contract work to small enterprises located in peripheral urban areas. Or entrepreneurs from nearby urban areas in search of cheaper land and labour set up small-scale units catering primarily to urban demand.

The nature of activity of RSSEs in terms of size and product group too, varies depending on the location of rural areas. It tends to be smaller, particularly in terms of investment in plant and machinery, and concentrated in the food-clothing-wood-bricks product groups with a higher incidence of family enterprises in the isolated rural areas. In the urban periphery, there is a tendency for units to be larger, more capitalised and with a higher proportion of chemical- and engineering- based industries.

However, cutting across location is the potential offered by the fast growing rural tertiary sector. Its demand for a number of essential

industrial products can form an important element of a rural industrialisation strategy based on small-scale enterprises. In view of the fact that the demand for most services increases with increasing incomes and services are largely insulated from urban competition, with barely any consumption leakages (Haggblade *et al.*, 1989), the potential for local linkages (of the RSSEs) with this sector is high.

On the whole, the proportion of “tiny” units (that is, units with an investment of less than Rs.500,000 in plant and machinery) was high in the region. In fact, it is much higher in Kerala as compared to the all-India figure. However, there was considerable heterogeneity within the small sector. While the broad picture suggested that the majority of rural small-scale enterprises are of the survival type and that the rest may not grow into large-scale enterprises, their contribution in terms of mobilisation of capital and entrepreneurial experience, and attempts at inter-generational improvement of household incomes, needs to be emphasised. Even the large segment of the enterprises that appear to have a limited growth potential, do play a critical role in the process of development. They provide a vital source of employment and incomes to a large number of rural households.

This is not to romanticise petty production. A policy of promoting indigenous entrepreneurship has to be implemented through the evolution of newer organisational forms which are, in any case, warranted to overcome the proliferation of tiny units in Kerala with simple, low capital using technologies, and over-crowding in similar activities thereby depressing individual earnings. There is an obvious need to bring together the highly scattered small capital into a more co-ordinated framework of rural industrialisation. The panchayats could play a major role in preparing plans for local development including strategies for rural industrialisation. For instance, attempts have been made to evolve

a methodology for developing an industrial plan at the gram panchayat level. Krishna Kumar (1999) in his study attempts to delineate the problems involved in the preparation of an industrial plan at the village level based on its comparative advantage. It seeks to develop such a plan primarily through focus group discussions/in depth interviews with experts, members of industrial sub committees, elected representatives, government officials, banking personnel, academicians and social activists. The enactment of the 73rd and 74th Constitutional Amendments in 1994 which endows panchayats (and urban local bodies) with powers to function as institutions of self-government, offers a vast potential for rural growth based on rurally linked small scale manufacturing industries through a process of planning and participation at the local level.

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

	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
Population	1.5	1.4	5.1	5.1	1.5	1.4	1.9	1.8	1.6	1.6
Main workers	1.3	1.4	5.4	6.4	1.6	1.6	2.1	2.0	1.5	1.6
I. Agriculture	0.5	0.6	8.1	7.8	1.2	1.4	2.8	2.8	0.6	0.7
II. Non-agriculture	2.5	2.4	4.2	4.1	1.6	1.6	1.9	1.8	2.5	2.4
1. All manufacturing	0.9	0.7	3.2	2.6	0.5	0.5	0.8	0.7	0.8	0.7
i. Household Manufacturing	-1.2	-2.0	0.1	neg	-1.4	-1.6	-1.2	-1.3	-1.1	-1.9
ii. Non-Household Manufacturing	1.6	1.3	4.2	3.3	0.7	0.8	1.1	1.0	1.5	1.4
2. Construction	5.6	5.5	9.6	9.6	6.0	6.0	6.3	6.3	5.9	5.8
3. Trade & Commerce	3.3	3.1	4.6	4.5	2.6	2.4	2.8	2.6	3.3	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
5. Other services	2.3	1.8	3.5	3.4	0.9	0.4	1.1	0.6	2.1	1.7

Source: 1. Census of India, Series 9, Kerala 1971, Economic Tables B1-BIV and Census of India, 1971, Kerala, Town and Village Directory, Director of Census Operations, Thiruvananthapuram.
2. Census of India, Series 12, Kerala 1991, Economic Tables for Districts, *Taluk*, Block, Panchayat and Town for each district (not wholly published). See Eapen 2001

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

Table 2. Size Structure of Manufacturing Industry in Kerala: 1961, 1981 and 1991

	Actual Employment			As % Total Manufacturing			As % Total Workers		
	1961	1981	1991	1961	1981	1991 [@]	1961	1981	1991
1. Total manufacturing (a+b)	1018034	1285775	1359364	100	100	100	18.1	16.6	14.9
a. Non-household sector	529472	971700	1088846	52.0	75.6	80.1	9.4	12.5	11.9
1. Large/Medium factories	120581	212046	271961*	11.8	16.5	20.0*	2.1	2.7	2.9*
2. Small factories	44477	52954		4.4	4.1		0.8	0.7	
3. Non-household									
Non-factory sector	364144	706700	816885	35.8	55.0	60.1	6.5	9.1	8.9
b. Household sector	488562	314075	270518	48.0	24.4	19.99	8.7	4.0	3.0

Source : (Albin 1988); (Eapen 2001)

Note: 1. Data in the cited paper has been updated for 1991, using Census of India, Series 12, Kerala, Economic Tables and Statistics for Planning , Kerala 1993

* Data relating to large medium and small factories are given along with each other.

@ Include marginal workers

Table 3. Distribution of Entrepreneurs by Place of Origin

Block	Origin of entrepreneurs					Total	Sample size
	Local panchayat and block	district	Non-local state	outside state	Total non local		
1. Kollengode	100	-	-	-	-	100	62
2. Malampuzha	84.5	10.3	1.7	3.4	15.4	100	58
3. IDA units	-	60.0	30.0	10.0	100	100	10
4 Total	85.4	9.3	3.1	2.3	14.7	100	130

Source: Field Survey.

Note: Figures indicate cell counts as a percentage of row totals

Table 4 Distribution of Sample RSSEs by Father's Occupation and Type of Units

Father's Occupation	Kollengode Block			Malampuzha Block			
	FE	SSU	All	FE	SSU	All	IDA
1. Agriculture	28.0	35.1	32.2	31.2	28.6	29.3	20.0
2. Traditional industry	16.0	-	6.4	12.5	4.8	6.8	-
3. Employee/employer in similar/related SMLI	28.0	16.2	20.9	25.0	31.0	29.3	40.0
4. Business	24.0	35.1	30.6	12.5	14.2	13.8	40.0
5. Service	4.0	8.1	6.4	18.8	9.5	12.1	-
6. Agriculture plus Business	-	5.4	3.2	-	11.9	8.6	-
7. Total	100	100	100	100	100	100	100
Sample size	25	37	62	16	42	58	10

Source: Field Survey.

- Notes:*
- Figures indicate cell counts as a percentage of column totals.
 - Father's occupation of the promoter of the two co-operative societies in Malampuzha and one in Kollengode has been taken
* SMLI – small, medium and large-scale industry
FE – Family enterprise; SSU-small-scale unit
IDA – Industrial Development Area

Table 5. Distribution of Sample RSSEs¹ by Place of Origin of Workers Employed

Block	Place of origin					Sample size
	Local ²	Non-local		Total non-local	Total	
		District/State	Outside State			
1. Kollengode	98.0	-	1.9	1.9	100	52
2. Malampuzha	70.3	14.8	9.3	24.1	100	54
3. IDA	30.0	30.0	40.0	70.0	100	10
4. Total	79.3	9.5	8.6	9.5	100	116

Source: Field Survey.

Notes: Figures indicate cell counts as a percentage of row totals.

1. One-person units numbering 10 in Kollengode and 4 in Malampuzha have been excluded.
2. Refers to panchayat and block.

Table 6. Location of Market for Raw Materials by Product Group

Kollengode Block									
Product Group	Not using Raw material	Mostly local Panchayat and block	<u>Mostly non-local</u>		Outside state	Total non-local	Local & non-local	All locations	Sample size
			District	State					
1. Agro and natural resources-based industries	-	52.3	21.4	4.8	14.3	40.5	7.1	100	42
a. Food products	-	70.0	20.0	-	-	20.0	10.0	100	20
b. Clothing, coir, wood, cane leather, rubber, bricks	-	36.4	22.7	9.1	27.3	59.1	4.5	100	22
2. Printing, plastic, chemicals	-	-	40.0	20.0	20.0	80.0	20.0	100	10
3. Metal products and machinery	-	-	42.8	28.6	28.6	100	-	100	7
4. Service and repair	100	-	-	-	-	-	-	100	3
Total	4.8	35.5	25.8	9.7	16.1	51.6	8.1	100	62

Note: Figures indicate cell counts as a percentage of row totals.

* Clothing refers to textiles, ready-mades and handlooms.

Malampuzha Block										
Product Group	Not using Raw material	Mostly local Panchayat and block	Mostly District	Mostly non-local State	Outside state	Total non-local	Local & non-local	All locations	Sample size	IDA
1. Agro and natural resources-based industries	-	17.4	34.8	8.7	30.4	73.9	8.7	100	23	(3)
a. Food products	-	28.6	42.8	-	14.3	57.1	14.3	100	7	(30)
b. Clothing, coir, wood, cane leather, rubber, bricks, cement	-	12.5	31.2	12.5	37.5	81.2	6.2	100	16	-
2. Printing, plastic, chemicals	-	-	60.0	-	40.0	100	-	100	5	(2)
3. Metal products	26.0	-	21.7	-	43.5	65.2	8.7	100	23	(5)
4. Service and repair	100	-	-	-	-	-	-	100	7	-
Total	22.4	6.9	27.6	3.4	32.8	63.8	6.9	100	58	(10)

Notes: * IDA units have been given in brackets by product group in the last column. Their market location of raw materials is entirely non-local.

Table 7. Distribution of Sample RSSEs with Forward Production Linkages by Sector

Block	Sector				Total	Sample@ Size
	Agriculture	Industry	Construction	Services		
1. Kollengode	8.7	21.7	39.1	30.4	100	23
2. Malampuzha	11.1	58.3	19.4	17.4	100	36
3. IDA	14.3	57.1	-	28.6	100	7

Source: Field Survey.

Notes: Figures indicate cell counts as a percentage of row totals.

@ Only those sample units with forward production linkages have been taken.

IDA – Industrial Development Area.

Table 8. Distribution of Sample RSSEs Producing Consumer Goods/Services by Market Location of Output

Block		Mostly local Panchayat & block	Location			Total non-local	Local & non-local	All locations	Sample [@] size
			Mostly District	Mostly non-local State	Outside state				
1.	Kollengode: All RSSEs	58.9	23.1	5.1	-	28.2	12.8	100	39
	FE	75.0	15.0	-	-	15.0	10.0	100	21
	SSU	38.9	33.3	11.1	-	44.4	16.7	100	18
2.	Malampuzha: All RSSEs	63.6	27.3	9.1	-	36.4	-	100	22
	FE	100	-	-	-	-	-	100	11
	SSU	27.3	54.5	18.2	-	72.7	-	100	11
3.	IDA	-	-	*	*	100	-	100	3
4.	K & M & IDA: All RSSEs	57.8	23.4	9.4	1.6	34.4	7.8	100	64
	FE	83.9	9.7	-	-	9.7	6.4	100	32
	SSU	31.2	37.5	18.8	3.1	59.4	9.4	100	32

Source: Field Survey.

Notes: 1. Figures indicate cell counts as a percentage of row totals.

2. Total non-local includes district, state and outside the state.

@ Only those units with consumption linkages have been taken.

Table 9. Percentage of Units with BPL, FPL and CL¹ which are Locally-oriented and Employment Therein

		Type of Linkages					
		BPL		FPL		CL	
		Units	Employment	Units	Employment	Units	Employment
1.	Kollengode All RSSEs	52.3	53.5	52.2	37.6	59.0	37.6
	FE	53.3	54.3	75.0	86.7	80.0	56.6
	SSU	51.8	53.4	47.4	32.1	36.8	28.6
2.	Malampuzha All RSSEs	15.4*	4.8	41.9	40.3	56.0	15.4
	FE	33.3	29.4	100*	100*	100*	100
	SSU	10.5	3.2	34.2	38.9	21.4*	6.0

Source: Field Survey.

- Notes:*
- For each type of linkage, all units which displayed such linkages were identified and the percentages refer to those units within each category that were locally-oriented.
 - BPL – backward production linkage; FPL – forward production linkage; CL – consumption linkage.
 - IDA units are included under Malampuzha..
FE – Family enterprise; SSU – Small scale unit
- * The number of units is very small, 5 and below.

Appendix A: Spatial Patterns of Employment by Industry Group (in percent)

	Spatial categories									
	Rural			Small			Cities/Big Medium Towns*			
	Year	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
	91	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
	91	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	20.2	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	16.8	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	55.3	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	0.7	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	13.9	12.7	17.8	18.1	18.3	17.3

cont'd.....

		Spatial categories											
		Rural				Small				Cities/Big Medium Towns*			
Year		P	M	F	P	M	F	P	M	F	P	M	F
i.	Household Manufacturing	71	4.4	3.2	8.3	7.2	5.5	13.5	3.4	2.6	6.7		
ii.	Non-household Manufacturing	71	10.1	9.7	11.8	14.9	16.1	10.9	19.2	19.8	16.4		
		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 Commerce	71	7.4	9.3	1.5	16.9	20.4	4.2	18.8	21.8	6.0		
		91	10.9	13.1	3.5	13.9	17.1	4.7	22.9	25.7	12.0		
8.	Transport and Communication	71	2.8	3.5	0.8	6.9	8.5	1.5	10.2	12.0	2.4		
		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 1. See Eapen 2001.

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

2. P – Person; M – Males; F – Females.

References

- Ahammed, C. S. and R.W. Herdt (1984), "Measuring the Impact of Consumption Linkages on the Employment Effects of Mechanisation in Philippine Rice Production", *Journal of Development Studies*, Vol. 20, No.2.
- Aiya, V. Nagam (1906), *The Travancore State Manual*, Vol.111, Government Press, Thiruvananthapuram.
- Albin, A (1988), "Manufacturing Sector in Kerala: A Study of Scale, Structure and Growth", *M.Phil Thesis*, Centre for Development Studies, Thiruvananthapuram.
- Bagachwa M.D. and F. Stewart (1990), "Rural Industries and Rural Linkages in Sub-Saharan Africa: A Survey", *Development Studies Working Paper No.23*, Queen Elizabeth House, Oxford.
- Bell, C., P. Hazell and R. Slade (1982), **Project Evaluation in Regional Perspective: A Study of an Irrigation Project in North-west Malaysia**, John Hopkins University Press, World Bank, Baltimore and London.
- Casinader, R. (1994), "Enigma of Kerala Spatial Formations: Gragara as an Invalidation/Recovery of the Desakota Hypothesis", AKG Centre for Research and Studies, International Congress on Kerala Studies, *Abstracts*, Vol 2.
- Chuta, E. and C. Liedholm, (1985), **Employment and Growth in Small Scale Industries: Empirical Evidence and Policy Assessment for Sierra Leone**, Macmillan Press Ltd., London.
- (CRD) Commissionerate for Rural Development (1995), *Statistics of Rural Development in Kerala*, Government of Kerala, Thiruvananthapuram.
- Deb, N.C. and M. Hossain (1984), "Demand for Rural Industries Products in Bangladesh", *The Bangladesh Development Studies*, Vol. XII, No.189.

- Dunham, D. (1991), "Agricultural Growth and Rural Industry: Some Reflections on the Rural Growth Linkages Debate", *Working Paper Series No. 14*, Institute of Social Studies, The Hague.
- Eapen, M. (2001), "Rural Non-farm Employment: Agricultural versus Urban Linkages: Some Evidence from Kerala State, India", *Journal of Peasant Studies*, Vol. 28, No.3.
- Franke, R.W. and B.H. Chassin (1991), "Kerala State, India: Radical Reform as Development", *Monthly Review*, Vol. 42, No. 8.
- Haggblade, S., P. Hazell, and J. Brown (1989), "Farm-Non-farm Linkages in Rural Sub-Saharan Africa", *World Development*, Vol. 17, No. 8.
- Harriss, B. (1987), "Regional Growth Linkages from Agriculture", *Journal of Development Studies*, Vol.23, No.2.
- Harriss, B. and J. Harriss (1984), "'Generative' or 'Parasitic' Urbanism? Some Observations from the Recent History of a South Indian Market Town", *Journal of Development Studies*, Vol. 20, No.3.
- Harriss, J. (1991), "Agriculture/Non-agriculture Linkages and the Diversification of Rural Economic Activity", in Breman, J. and S. Mundle, (eds.) **Rural Transformation in Asia**, Oxford University Press, Delhi.
- Hart, G. (1989), "The Growth Linkages Controversy: Some Lessons from the Muda Case", *Journal of Development Studies*, Vol. 25, No. 4.
- Hazell, Peter B.R. and A. Roell, (1983), "Rural Growth Linkages: Household Expenditure Patterns in Malaysia and Nigeria", *Research Report No.41*, International Food Policy Research Institute, Washington, D.C.
- Hazell, Peter B. R. and B. Hojjati (1995), "Farm/Non-farm Growth Linkages in Zambia", *Journal of African Economies*, Vol. 4, No.3.
- Hirschman, A.O. (1958), **The Strategy of Economic Development**, Yale University Press, New Haven.

- Ho, S. P. S. (1980), "Small-scale Enterprises in Korea and Taiwan", *World Bank Staff Working Paper No.384*, World Bank, Washington D.C.
- Johnston, Bruce F. and P. Kilby (1975), **Agriculture and Structural Transformation, Economic Strategies in Late- Developing Countries**, Oxford University Press, New York.
- (KITCO) Kerala Industrial and Technology Consultancy Organisation (1994), **Industrial Potential of Palakkad District**, Study prepared for the Government of Kerala, Thiruvananthapuram.
- Krishna Kumar KK (1999): "A Methodology for Developing an Industrial Plan for a *Grama Panchayat*: a case Study of Chottanikkara Panchayat in Ernakulam District", a study undertaken for the Kerala Research Programme on Local Level Development, Trivandrum.
- Kundu, A. and M. Raza (1982), "*Indian Economy --The Regional Dimension*", Centre for Study of Regional Development, Jawaharlal Nehru University, New Delhi.
- Liedholm, D. and C. Mead (1987), "Small-scale Industries in Developing Countries: Empirical Evidence and Policy Implications", *MSU International Development Paper No.9*, Michigan State University, East Lansing.
- Lindert, P. van and O. Verkoen (eds.) (1997), **Small Towns and Beyond: Rural Transformation and Small Urban Centres in Latin America**, Thela Publishers, Amsterdam.
- Lipton, M. (1984), "Family, Fungibility and Formality: Rural Advantages of Informal Non-farm Enterprises versus the Urban-formal State", in Amin, S. (ed), **Human Resources, Employment and Development, Vol. 5, Developing Countries**, Macmillan Press Ltd., London.
- Mathew, V (1996), "Kerala's New Investment Destination - Palakkad", *Businessline*, March 19.

- Mellor, J.W. (1976), **The New Economics of Growth: A Strategy for India and the Developing Countries**, Cornell University Press, Ithaca.
- Papola, T.S. (1987), "Rural Industrialisation and Agricultural Growth: A Case Study of India", in R. Islam (ed.) **Rural Industrialisation and Employment in Asia**, ILO.
- Rangarajan, C. (1982), "Agricultural Growth and Industrial Performance in India", *Research Report No.33*, The International Food Policy Research Institute, Washington D.C.
- Ranis, G (1990), "Rural Linkages and Choice of Technology", in Stewart, F et al (eds) **The Other Policy**, IT Publications, London.
- Rutten, Mario A.F. (1991), "Capitalist Entrepreneurs and Economic Diversification: Social Profile of Large Farmers and Rural Industrialists in Central Gujarat, India", *Ph.D Thesis*, University of Amsterdam, Amsterdam.
- Saith, A. (1992), **The Rural Non-farm Economy: Processes and Policies**, ILO, Geneva.
- (2001): "From Village Artisans to Industrial Clusters: Agendas and Policy Gaps in Indian Rural Industrialisation", *Journal of Agrarian Change*, Vol.1, No.1.
- Sreekumar, T. (1993), *Urban Process in Kerala, 1900-1981*, Centre for Development Studies, Thiruvananthapuram.
- Uribe-Echevarria, F. (1991), "Small-scale Manufacturing and Regional Industrialisation: The Urban and Regional Development Perspective", *Working Paper Series No.16*, Institute of Social Studies, The Hague.

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