CHAPTER VIII
SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

The tile industry is one of the well known traditional industries in Kerala. According to experts, it is an industry most suited to the conditions of the State because it is highly labour intensive and it uses low technology and does not require highly skilled labour. Kerala has been enjoying a dominant position in India with respect to this industry so much so that it is often referred to as the home of tile industry. As per the latest estimates, there are 283 registered tile factories in Kerala which provide direct employment to about 40,000 people and indirect employment to over 60,000 people in the State. Despite these realities, the industry is beset with a lot of problems in recent years.

However, studies on tile industry and its related problems are very few in Kerala. The few studies which were conducted mainly examined the growth, problems and prospects of this industry. No exhaustive research work has so far come out giving more importance to the examination of the extent and causes of underutilisation of installed capacity and financial performance of tile manufacturing units. In addition, no study has come up taking into account the different levels of technology followed by various tile factories. In this background, the present study is the first of its kind, which focuses on the economics as well as the physical and financial performance and capacity utilisation of tile factories in Kerala. The study also takes into account the impact of different levels of technology, especially in the field of productivity. Thus this study assumes significance in this context.
The main objectives of the study are: (i) to examine the economics of tile industry in Kerala, (ii) to analyse the financial performance of tile manufacturing units in Kerala, and (iii) to identify the problems and constraints of tile industry in Kerala.

Based on the objectives of the study, three hypotheses have been framed: (i) the economics of tile industry is becoming unfavourable over the years, (ii) the financial feasibility of tile industry is becoming unfavourable over the years, and (iii) modern technology based tile factories achieve higher level of productivity.

The study is confined to tile factories working in Kerala. This is a sample study. A two stage random sampling technique was adopted to select the samples. In the first stage, the regions in which the tile units are concentrated were selected. In the second stage, samples were selected from the identified regions. Data were collected with the help of a pre-tested schedule from a sample of 42 factories spread over three regions, namely, Calicut, Trichur and Alwaye for a period of ten years from 1996-97 to 2005-06. Primary data were collected from the managers and employees of the sample units. Sources of secondary data were published materials of various institutions and departments.

Five important aspects under investigation in the study are: (i) a descriptive analysis of different aspects of manufacturing process of tile industry, (ii) a detailed discussion of the economics of the tile industry in terms of fixed capital, productive capital, working capital, invested capital, gross profit, value-added and so on, (iii) analysis of trends in labour productivity and total factor productivity with the help of simple measures (iv) capacity utilisation analysis with the help of installed capacity approach, and (v) financial performance appraisal with the help of ratio analysis and Multiple Discriminant Analysis.
The study is presented in eight chapters. The introductory chapter introduces the topic; explains the significance of the study, review of literature, methodology and data source, sample design and also the limitations of the study. The origin and development of tile industry is provided in the second chapter. The economics of tile industry in Kerala is analysed in the third chapter. The fourth chapter analyses trends in productivity, especially labour productivity. The conceptual and empirical contours of capacity utilisation are presented in the fifth chapter. Financial performance of sample units using certain ratios is done in the sixth chapter. The problems and constraints of the tile manufacturing units are discussed in the seventh chapter. The last chapter gives the summary of findings, conclusions and suggestions.

The summary of major findings emerged from the study are the following.

**8.1 Location**

About 88 per cent of the selected sample units had a rural orientation due to factors like easy availability of basic raw materials viz., clay and firewood. The location and ownership pattern of the tile factories in Kerala show that certain historical factors played an important role in its establishment. In Trichur area, activities of Chakola Kunju Vareed Devasy at Manali and in Malabar area the activities of Basel Mission were noteworthy. Of the total 42 factories surveyed, 80 per cent were established prior to 1947. The present generation inherited the factories and this was mainly responsible for the lack of entrepreneurship in this industry. About 47 per cent of the sample units are organized on partnership basis, 30 per cent units are run on the sole proprietorship basis and 23 per cent are private limited companies and co-operatives.
8.2  Economics of Tile Industry—An Aggregate and a Regional Analyses

8.2.1  Capital Structure

Examination of the capital structure points out that significant changes have not taken place in the composition of fixed capital. It means that not much additional investment has taken place during the period under study. But a little amount of modernisation took place in certain units in Calicut region. Another feature is related to the composition of working capital. Analysis of trends in the composition of working capital revealed that most of the factories raised much of their working capital through loans and advances.

An examination of the productive capital gives an indication that not many change has taken place in productive capital, which strengthens the view that the tile factories in general, once established, do not incur any additional expenditure for any of the fixed capital items.

Another noteworthy feature is related to the number of workers employed in tile factories and their emoluments. Though the industry is labour intensive in nature, the number of people employed in this industry has been decreasing. There were 4057 tile workers in 1996-97, but, it declined to 2724 in 2005-06. The main reason for this decline has to be found in alternative employment opportunities in the State at a relatively higher wage rate. It can also be noticed that workers of tile factories in Calicut region enjoy almost all benefits along with higher wages.

A perusal of the composition of input cost of tile industry in Kerala shows that the most important input component is clay, which on an average, accounts for 41 to 44 per cent of the total input cost; while, another important input component--firewood—shares 38 to 42 per cent of the total input cost. The most important problem associated with clay is its shortage, whereas high price is the most important problem connected with firewood. Analysis of the
cost structure reveals that, it varies among regions depending upon the nature of technology chosen.

### 8.2.2 Cost of Production

The cost of production is an important component of the economics of tile production. It is the summation of the input cost, labour cost and establishment cost. A close examination of the cost structure of selected tile units in Kerala shows that input cost as a proportion of total cost rose from 47.97 per cent in 1996-97 to 53.26 per cent in 2005-06. The other two components of cost of production are labour cost and establishment cost. The share of the former declined considerably from 45.56 per cent to 40.24 per cent and that of the latter marginally increased from 6.47 per cent to 6.50 per cent during the same period. This data very clearly proves that labour cost does not cause a serious problem to tile manufacturing units in Kerala.

Among the three regions, the rate of increase in input cost is high in Alwaye region and low in Trichur region. Similarly, the rate of increase in labour cost is high in Trichur region and low in Calicut region. Though total cost per unit is relatively high in Calicut region, this region is capable of producing better quality products at a relatively moderate price because of the economies of scale enjoyed by the factories in this region.

### 8.2.3 Products

Different tile factories in Kerala produce different types of clay products, of which, the most important one is roofing tiles. The share of roofing tile in total production was 67.88 per cent in 1996-97, which marginally declined to 65.49 per cent in 2005-06. Another important clay product is ridges, the share of which in total production slightly declined from 11.97 per cent in 1996-97 to 9.89 per cent in 2005-06. However, the share of brick in total production increased from 3.44 per cent to 10.80 per cent during
the reference period. The results of the study adequately support the hypothesis that the economics of tile industry exhibits fluctuations over the period and it has been becoming unfavourable over the years.

### 8.2.4 Profit

The very existence and future prosperity of a manufacturing unit depends on the margin earned over the cost of production. The sample units together earned a profit worth Rs. 98.48 lakh in 1996-97 which increased to Rs. 313.20 lakh in 2005-06. Tile factories in the State are susceptible to periodic fluctuations in the volume of profit earned. These fluctuations are attributed to fluctuations in sales, input costs and in selling price. Among the three regions, gross profit was found to be greater in Calicut region and less in the other two regions. This variation may be due to economies of scale enjoyed by sample units in Calicut region.

### 8.2.5 Value-added

A close examination of value-added figure reveals that in 1996-97, the sample units enjoyed Rs.1102.48 lakh as value-added, which rose to Rs. 1461.98 lakh in 2005-06 recording 32.60 per cent increase over the period of reference. We can notice fluctuations in value-added also which may be due to the variations in input cost, and sales proceeds. Average value-added figure of Calicut region is found to be greater than that of the other two regions.

### 8.2.6 Structural Ratios

Another important aspect of the economics of tile industry is its structural ratios which provide the sign of the basic structure of the industry. The important findings emerged from the study are as follows:
1. During the period under study, fixed capital-invested capital ratio and fixed capital-productive capital ratio were found to be low. This is an indication of high labour productivity.

2. Invested capital-output ratio most often recorded a rising trend in all the regions, particularly in Alwaye region owing to accumulation of materials, semi-finished goods and finished goods.

3. Input-output ratio remained more or less constant in Calicut and Trichur regions but increased in Alwaye region.

4. Value-added-input ratio and value-added-invested capital ratio recorded fluctuations over the years.

5. Input per-worker, output-per-worker and value-added per-worker increased during the period under study. This may be attributed to price increase (raw-materials as well as finished goods) over the years.

8.3 Physical Performance

The physical performance of the selected samples is evaluated with the help of productivity analysis. Although, various productivity measures are available, we have made use of simple productivity measures. In this study mainly the partial productivity measure is attempted, that also, the labour productivity measures. There are certain justifications for this. First of all, most of the tile units were established 100 years ago, so that estimation of capital stock is a very difficult problem. Secondly, most of the tile factories are labour-intensive in nature. Therefore, analysis of labour productivity will provide a true picture of the contribution of the workers. Labour productivity is measured by using output per worker and value-added per worker approaches. The most important findings of this analysis are as follows:

a) Labour productivity is, in general, low in tile industry.
b) The mean annual output per worker is more in continuous kilns.

c) The mean output per rupee of wages is the highest in continuous kilns.

d) Region-wise analysis of productivity indicates that mean output per worker
   and value-added per worker are higher in Calicut and Alwaye regions.

   Attempt has also been made to measure total factor productivity with
   the help of Direct Method, Kendrick Index method and Cobb-Douglas
   Production Function. Estimates of total factor productivity exhibited a
   fluctuating trend with different results at the aggregate and region level.

8.4 Capacity Utilisation

   An attempt has been made in this study to examine the theoretical
   background and empirical results of capacity utilisation. We made use of
   the installed capacity concept for measuring capacity utilisation in selected
   tile units, according to which capacity utilisation ratio is found out by
   dividing the actual production by the installed capacity. An analysis of
   capacity utilisation in the sample units in Kerala as a whole shows that
   installed capacity is underutilised in almost all tile units. It comes to about 30
   to 60 per cent of the installed capacity. Among the three regions, the average
   capacity utilisation is found to be higher in Trichur region (67.66 per cent)
   and the lowest level is recorded in Calicut region (57.45 per cent). Much
   wider fluctuation in capacity utilisation ratio could be found during the period
   of reference within each region itself. On the whole, all the regions recorded
   gross underutilisation in its capacity. An attempt has also been made to
   examine the causes of underutilisation. The most important among them are:
   shortage of raw-materials, shortage of power and so on.

   In this context, the study has attempted to know whether there is any
   relationship between the amount of capital invested and capacity utilisation;
the level of employment and capacity utilisation, the level of capacity utilisation and profit, and market demand and capacity utilisation. The study indicates that there is no close association between size and capacity utilisation but there exists a positive correlation between capacity utilisation and profit and also between market demand and capacity utilisation.

8.5 Financial Performance

Analysis of physical performance alone will not give a true picture regarding the health of an industrial unit. Therefore, an attempt has been made to assess the financial performance of selected samples. The financial strength and weakness of a firm are communicated in a more easy and understandable manner by the use of certain ratios. The most important ratios used in the analysis are: liquidity ratio, activity ratio, profitability ratio, turnover ratio, etc. The overall financial performance is analysed with the help of Altman's model. From the analysis of financial performance, the following conclusions are drawn:

a) Financial performance of the tile manufacturing units in Kerala is not satisfactory, but it shows signs of improvement in recent years.

b) The overall performance of the tile industry is good as indicated by the average ‘Z’ score.

8.6 Problems and Constraints

Examination of the problems facing the tile units shows that the major problems are: marketing, technological, raw-material, managerial, labour, financial, quality, research and development, and so on. Using the weighted score method, the intensity of each problem is ranked. It is found that the most serious problem confronting majority of the tile units in the State is the shortage of inputs, especially clay and firewood rather than lack of demand.
8.7 **Major Recommendations**

The following suggestions emerge from the findings of the study which can be used for the proper development of the tile industry.

(i) **Modernisation**

There is an urgent need for modernisation and technological upgradation of the existing small-scale tile factories. In the present context of "Industrial Darwinism" where "survival of the fittest" is the rule of the game, it becomes imperative to throw away the shackles of technological obsolescence. This is possible only through modernisation. Thus, "modernize or perish" or alternatively "modernize and prosper" has become the slogan of the day for small-scale tile factories.

**Scope of Modernisation**

About 95 per cent of the tile factories in Kerala are using the traditional methods for manufacturing their products. Therefore, there is enormous scope for modernisation at every stage of manufacture, marketing and management. Modernisation is the only panacea in the present industrial scenario of liberalization and globalisation in order to weed out wastage of resources and inefficiencies and improve competitive power. As a first step to modernisation, a B.Tech degree programme in Ceramic Technology/Engineering with special emphasis on heavy clay industry can be introduced.

(ii) **Cluster Approach**

Cluster development approach is one of the emerging trends where the small-scale industrial units also can find a place of growth. Clustering is considered to be an effective platform to enlarge production, trigger growth and alleviate poverty. Clusters lower transaction costs, help realise informational economies and lower the costs of credit surveillance. Dynamic and successful clusters exhibit a great deal of formal co-operation in terms of collective ventures. In addition, economies of scale in business operations,
information and knowledge net works, presence of specialised providers of support service are all advantages of dynamic clusters. Hence, it is high time that the tile industries should go for cluster approach in manufacturing.

(iii) Flexible Specialisation

The concept of flexible specialisation is "a new economic regime" based on less rigid manufacturing technologies than mass production. They challenge the mass production paradigm, which has dominated both theory and policy and point to the strength of the alternative paradigm-flexible specialisation. Being a peculiar strategy for competitive success based on efficient and flexible production and marketing of quality-competitive products, flexible specialisation will surely offer a paradigm shift for the industrial sector in general and tile manufacturing in particular.

Conclusion

From the analysis of the economics of tile industry in Kerala it is clear that, tile industry, though important in the early period, has been facing the threat of closure. The most serious problems affecting tile units are shortage of raw-materials, lack of modernisation and lack of diversification. It is true that the existing tile units in Kerala enjoy a wider market. Most of the tile units do not use their maximum capacity. Labour productivity of tile factories is low in Kerala and it varies among the regions. Financial performance is more or less satisfactory. The continued existence and survival of the existing units can be ensured only if modernisation, diversification, flexible specialization and cluster approach are introduced. In short, it is possible to bring up the tile factories to a reasonable level, if not to its earlier glory, if a pragmatic strategy is worked out. The most important component of such a strategy should be modernisation of existing units and diversification into value-added products.