Chapter 2

Research Designed and Review of Related Literature
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RESEARCH DESIGN AND REVIEW OF RELATED LITERATURE

This chapter presents the research design of the present study and a brief survey of related research works. For a better presentation the chapter is divided into two sections. Section-I deals with an objective of the study, hypotheses, methodology, scope of the study, significance of the study and limitation of the study and section-II, deals with a review of related literature in the field of industrial sickness in large scale sector and small scale section of foreign and Indian context.

SECTION-I

2.1 OBJECTIVES OF THE STUDY:

The studies undertaken so far in the field of industrial sickness in Manipur have not highlighted fully the causes of industrial sickness in this state. Hence, the present study has been undertaken with a view to unearth the real factors that are responsible for sickness of modern small scale industries in the state. The study incorporates the following objectives:-

i) to study the growth and development of the small-scale industries in Manipur

ii) to study the role of small scale industries in developing state economy

iii) to study the functioning of small scale industry in Manipur

iv) to study symptoms of sickness of small scale industries in Manipur

v) to examine various causes of sickness of the small scale industries in Manipur

vi) to suggest suitable measures for avoiding industrial sickness in Manipur
2.2 HYPOTHESIS OF THE STUDY:

The study broadly, aims at examining the use of available data and sample.

1) Sickness is found to be very grave usually in processing and manufacturing units of the state.

2) The industrial growth in the state has been on low growth path mostly due to more industrial failures in the small scale sector.

3) The sickness in modern small scale industries is multi-factoral in function and in consequence multi-dimensional.

4) Most of the sickness in modern small scale industries is due to the inadequacy of role performance of financial and service organisations operating in the environment of the small scale units in the state.

5) Lack of industrial conception and the absence of entrepreneur class adaptive to competitive and changing market forces has also added to the problem of sickness in modern small scale industries.

6) Industrial infrastructural bottlenecks in the state has not caused industrial sickness in the small scale sector, but only hastens the process of sickness if other forces turn unfavourable.

7) Subsidies and other incentives available to the small scale entrepreneurs in the state have only breaded unscrupulous entrepreneurs and has given birth to bogus units and perfunctory bureaucracy.

8) Most of the entrepreneurs of the sick units of the state, hail from traditional occupation like agriculture and business.

2.3 METHODOLOGY

To test the above hypotheses, the researcher has collected both primary and secondary data. In order to collect the primary data, the researcher first designed a rough questionnaire which was pre-tested before finally administered. In the light of the experience gathered through pre-testing, the researcher modified the original questionnaire to make it more comprehensive and suitable for collecting the maximum
information from the respondents. The questions framed covered almost all the main aspects of industrial sickness in Manipur.

Besides the information collected through the questionnaire, the researcher contacted personally many a functionaries of DICs and other concerned agencies in order to cross-examine the responses given by the units-holders and also to knew the official view point on the various issues. In this connection, an interview guide was used which was prepared on the basis of the responses given by the unit-holders. The views and information obtained from those officials have been reflected at the appropriate places.

The secondary data were obtained from the important publications and reports (published as well as unpublished) of all the agencies functioning at the district, state and central levels. Moreover, certain data were also collected from the official records of various agencies.

2.4 SCOPE OF THE STUDY

Small scale industries have been playing a crucial role in the economic development of Manipur. At present, there are nine districts in Manipur. Out of these seven districts are selected for the present study. viz Imphal East, Imphal West, Thoubal, Senapati, Chandel, Bishnupur and Churachandpur Districts. In this study an attempt has been made through sample study to analyse and interpret various factors causing sickness in this backward state. The data referred in this study has been from 1980-2000. However, the data prior to 1980 are also referred wherever found necessary. Some remedial measures have been suggested in order to prevent as well as to cure this problem.

2.5 SIGNIFICANCE OF THE STUDY

Manipur is one of the industrially backward states of India which is different from the rest of the country with regard to geo-physical features, religio-political compulsions, socio-cultural imperatives, infrastructural boundaries, resources
endowments etc., is recline under industrial backwardness. The more intriguing aspect of the state's industrial economy is the high incidence of industrial sickness in particular, in small scale sector which forms the main industrial sector of the state. In spite of alarming sickness in small scale sector which is heavily taxing upon the already weak industrial economy of the state, as yet there has been no effort from any quarter whatsoever, to involve a deeper probe into this complex problem. Obviously, increase in sickness in small scale industries in Manipur results human suffering due to loss of unemployment, wastage of scarce resources like capital, blocking huge investment without any return and a bad industrial image for the state and the nation both.

The present study have focused on different issues of sickness viz, definition of sick unit, causes of sickness, how to arrest and rehabilitate sick industries and on the different schemes and policies concerning sickness. Almost all the chapters have tried to capture the forces that are behind the industrial features in the states, however, there has been a dis-agreement with regard to most of the factors assumed to have caused to sickness and also as to the role played by different role players in the sickness.

Given the seriousness of the problem which has vitiated the whole industrial environment, there is an immense need to evolve a detailed investigation holistically into the problem of industrial sickness with the purpose to unfold the malady of sickness in small scale industries for framing pragmatic policy implications. The present study liked "Industrial Sickness in Manipur-A Case Study of Small-Scale Industries", seeks to probe objectively into the 'factors' which basically have caused industrial sickness in the state so as to present it in its right perspective.

2.6 LIMITATION OF THE STUDY

Though proper care is taken in the successful completion of the study it is not free from the limitation.

The researcher face surely constraints in the study in obtaining accurate data from the respondents to minimise short fall. Researcher made number of visit to the
respondents and their units, collected reliable and accurate data. In fact, during this study researcher face many problems which have been overcome to the desired level. However, proned cumbersome and fine consuming. The main difficulty faced in the study was due to the weak data base of the small scale industrial sector in the state. The data about the number of small scale sick units, etc. is totally missing in the state. The identify of the sick small scale units, the researcher at its own has conducted a diagnostic survey to find the sick units. However, it was not possible for the individual researcher to conduct diagnostic study of all the industrial unit. Though different questionnaires are designed with simple questions for the entrepreneurs, because of the illiteracy and lack of maintaining records, majority of the respondents were not able to respond properly.

Non-cooperation and unwillingness of the respondents, non cooperation from the government officials, lack of proper records and indifferent attitude of the officials are some of the limitations of the study.

Over all, the study has covered all aspects of the industry. It has highlighted the problems faced by the industry at all the four functional aspects i.e., production, finance, labour and marketing. It is strongly believed that the outcome of the study will be useful to develop and improve small scale industries in the state of Manipur.

2.7 PLAN OF THE STUDY

Keeping in view, the objectives and methodology adapted, the study has been presented in seven chapters which have been arranged in a systematic sequential order: A brief description of chapters is given as under:

Chapter-I is introductory in nature which define sick industrial units, sickness conception in develop countries, process of industrial sickness, need for a far earning system, signals and symptoms of industrial sickness, causes of industrial sickness, magnitude and nature of sickness and state-wise sickness in industries.
Chapter-II covers the objectives of the study, hypothesis of the study, methodology of the study, scope of the study, significance of the study and limitation of the study. A brief review of the existing literature is also included in this chapter.

Chapter-III deals with concept of small scale industries in developed and developing countries, characteristic of small scale industries, importance of small scale industries, definition of small scale industries in India-past and present, SSIs - Five Year Plans, industrial policies and committees and contribution of small scale sector to Indian economy.

Chapter-IV covers the geo-physical features, industrial structure in Manipur, state public sector undertakings, growth of large and medium scale industries, small scale industries in Manipur, prospects of small scale industries in Manipur, number, production, employment and investment in Manipur, growth of small scale industries, institutional finance for small scale industries in Manipur, All India Financial Institutions, Small Industries Development Bank of India.

Chapter-V covers the Analysis of survey results and discussion, localisation of sick unit, entrepreneurship development, entrepreneurs background, nature of sickness, investment pattern, employment pattern, life span of sick units, wide gap between projected costs and disbursements, longer gestation period of sick unit, time and cost overrun of sick units, closer of small scale industries, reasons for closure of unit, factorial analysis etc.

Chapter-VI presents measures to prevent industrial sickness, role of banks and financial institutions, role of the Government, the role of the entrepreneurs and the role of professionals.

Chapter-VII outlines the conclusions. It also points out the suggestions made to the small entrepreneurs, financial agencies and various small industry promotion agencies in the light of the findings and conclusions made out in the study.
SECTON-II

REVIEW OF RELATED LITERATURE

In this section an attempt has been made to review the existing literature on this subject. Studies available on the industrial sickness in small scale industries vary from individual researchers to committee reports, empirical studies to descriptive works and general to specific nature of studies. Critical review of these became imperative with a view to summarise the finding for generalisation, and to locate the research gaps and deficiencies in the existing literature so as to provide direction to the future studies on the subject. Hence, this section of the study devoted to critically review all the available studies/papers/reports on the problem of sickness in small scale industries. Some studies may be missed not deliberately but on account of non-accessibility. However, every effort has been made to cover the maximum number of studies findings into the problems of sickness even in some other countries have also been highlighted. A brief review of the existing work is depicted in the following paragraphs -

Paul J. Fitz Patrick:

Paul J. Fitz Patrick conducted a study in 1932 to examine whether there was a significant different in the trend of ratios for failed firms at least three years prior to failure.1 Each pair of firms was examined for three years prior to the date of failure. His objectives were to examine whether or not the ratios of successful companies were satisfactory when the ratios of failed concerns were unfavourable and whether the majority of the ratios of successful comprises were favourable or unfavourable and to what extent. He examined nineteen pairs of failed and non failed firms using a number of financial ratios. He concluded that all the ratios of failed firms were persistently different from the non failed firms at least three years prior to failure. It was observed that the ratios of not worth to debt and net profits to net worth wave the best indicators of failure among the ratios used.

Winakor, A.H. and Smith, R.F.:

Winakor and Smith2 started the use of financial ratios as a potent tool for predicting financial difficulty in their analysis of a sample of 183 firms. They analysed
twenty-one ratios for a period of 10 years prior to the failure of the firms. They concluded on the basis of the data analysed that the ratios of net working capital to total assets was the most accurate and reliable indicator of failure with its decline beginning ten years before the occurrence of business failure.

**Charles L. Merwin's Study (1942):**

Merwin selected "continuing" and discontinuing small firms for a period of eleven years (1926-36) and applied a large number of unspecified ratios in order to ascertain prior six years trend. He compared industry mean ratios of discontinuing firms with estimated normal ratios. His findings were that the three ratios, viz, (i) working capital to total assets, (ii) networth to total debt and (iii) current assets to current liabilities are very sensitive predictors of discontinuance upto, as early as, four to five years before failure. Merwin's study was really the first sophisticated analysis of predictive power of ratios and his finding were also appreciated by many scholars.

**Hickman, W.B., Saulnier, R.J., Moore, G.H., Atkinson, T.K. Andsaiden, M.H.**

Hickman found that the times-interest-earned ratio and the net profits to sales ratio were useful predictors of the default experience of corporate bond issues during 1900-1943. Saulnier found evidence from RFC lending experience during 1934-1951 that borrowing firms with poorer current ratios and net worth to debt ratios were more prone to loan default.

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Moore and Atkinson⁶ found that the ability to obtain credit was correlated with several ratios. Saiden⁷ reported that certain financial ratios (e.g., net working capital to total assets) were inversely correlated with an index of trade credit difficulties. This series of studies used ratios as variables for examining and describing economic activity, thus, further, widening the empirical base of ratio analysis. Despite the various statistical shortcomings of these early studies (e.g., small and biased samples, lack of control groups), systematic difference between the ratios of failed and non-failed firms were established. However, these studies were generally descriptive and did not face directly the normative problem of predicting corporate failure.

William H. Beaver’s Study:

William H. Beaver has also earlier made a study on the problem in "Financial Ratios are predictors of Failure" published in 1966.⁸ The study examined the predictive purely 30 financial ratios and threw light on the relative efficiency of different ratios to predict of failure up to 5 years prior to failure. The major finding of the study was that the ratio of cash flow to total debt was the best single predictor of failure because it showed the least percentage of error. This ratio misclassified 13 per cent of the companies one year prior to failure and the rate of misclassification was only 22 per cent of the companies five years prior to failure. In addition to cash flow to total debt, other five ratios which were found to have the greatest predictive power were:

i) Net income to total assets,
ii) Total debt to total assets,
iii) Working capital to total assets,
iv) Current ratio, and

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v) No credit interval

The other finding of the study were: based solely upon a knowledge of the financial ratios, and failure status of firms can be expected from a random prediction. This evidence, together with the other tests conducted, suggested that financial ratios can be useful in the prediction of failure for at least five years prior to the event.

Tamari

Tamari's\(^9\) was the first multivariate study in which weighted composite of several ratios were used to indicate the possibility of failure. Few financial ratios generally accepted in the literature and practice as indicators of financial soundness were attached certain weights according to their important in the eyes of financial analysts, economists and credit men and combined in a subjective manner.

Profit trend and equity capital and reserves to total liabilities ratios were given maximum weights relatively showing that these ratios were considered to be the best indicator of failure.

Tamari pointed that ratios were only indicators and that low values were not poor of failure bankruptcy. The main criticism levelled against Tamari's study was that the both the ratios and relative weights used in the index were some what arbitrarily chosen. The choice of ratios and relative weights were based on writer's own experience without any conceptual or empirical support. The resulting indices were, therefore, of questionable generality.

Altaman's Discriminant Analysis - 'Z' Score Model

Edward Altman, who was an advisor to the Presidential Congressional Commission on the National Bankruptcy Laws of the U.S.A, and Professor of Finance, at New York University, did some pioneering work on "Industrial Sickness". Altman in his model, tried to improve upon conventional ratio analysis by showing a way of combining several financial ratios into a single index, viz., the 'Z' score' as he

calls it, based on a statistical procedure known as multiple discriminant analysis, or MDA\textsuperscript{10}. The MDA technique derives a linear combination of all on some characteristics that best discriminate between the groups. The discriminant function is of the form:

$$Z = V_1X_1 + V_2X_2 + \ldots + V_nX_n$$

Where, \(Z\) = overall index and \(V_1, V_2, \ldots, V_n\) are discriminant coefficients and \(X_1, X_2, \ldots, X_n\) are independent variables (ratios).

The discriminant function thus transforms the values of the, individual variables into a single discriminant score \(Z\), which is then used to classify objects into various groups.

Altman's model formulates only two groups of firms, viz., bankrupt and non-bankrupt. He used 33 bankrupt and 33 non-bankrupt manufacturing firms. The firms in bankrupt group were matched to those in non-bankrupt group by industry and size. 22 financial ratios found to be significant indicators of corporate problems in the past studies were considered as predictors of failure. He classified the ratios into five categories, viz. liquidity, profitability, leverage, solvency and activity ratios. The following discriminant function did the best overall job in discriminating bankruptcy states of the sampled firms:

$$Z = .012 X_1 + .014 X_2 + .033 X_3 + .006 X_4 + .999 X_5$$

Where,

- \(Z\) = Overall index
- \(X_1\) = Working capital/total assets.
- \(X_2\) = Retained earnings/total assets.
- \(X_3\) = Earning before interest and taxes/total assets.
- \(X_4\) = Market value equity/book value of total debt.
- \(X_5\) = Sales/total assets.

A cut off point for the \(Z\) score was determined in such a way as to minimise the overlap between bankrupt and non-bankrupt firms. He concluded that the \(Z\) score of 2.675 was the best cut-off point which maintained minimum misclassification.

Using this equation, Prof., Altman was able to predict 95 percent correctly for firms that would tail within one year, 12 per cent within two years, 48 per cent within three years and 30 per cent within four and five years.

**Further refinements of the Altman's Study:**

Altman, Haldeman and Narayanan\(^{11}\) in their study incorporated modifications in techniques which were suggested in several subsequent studies and developed a new model called Zeta analysis which is essentially the same as Z-score model, but takes into account changes in financial reporting standards.

Their sample consisted of 53 manufacturing and retailing bankrupt firms and 58 non-bankrupt ones. They tested 27 ratios classified into profitability, coverage and other earnings relative to leverage measure, liquidity, capitalization ratios, earnings variability and a few miscellaneous measures. Multiple discriminant analysis was used with both linear and quadratic structures. Their study resulted in new variables explaining corporate failure. These were:

\[
\begin{align*}
X_1 &= \text{Earnings before interest and taxes/total assets}, \\
X_2 &= \text{Stability of earnings measured by normalised measure of standard error of estimate around a ten-year trend in } X_1, \\
X_3 &= \text{Earnings before interest and taxes/total interest payment}, \\
X_4 &= \text{Retained earnings/total assets}, \\
X_5 &= \text{Current assets/current liabilities}, \\
X_6 &= \text{Equity/total capital}, \\
X_7 &= \text{Size measured by the firm's total assets}.
\end{align*}
\]

Altman claimed that the newer Zeta model predicted better than his earlier model.

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Deakin, E.B.

Deakin made an attempt to develop an alternative to the Beaver and Altman models. A sample of thirty-two failed firms and a matching sample of thirty-two non-failed firms was taken. The failed firms' sample included those which experienced failure between 1964-1970. Each of the failed firms was matched with an non failed firm on the basis of industry, size and year of financial data. Deakin's original model included 14 ratios which would best predict corporate failure in each of the time years prior to failure. "Deakin conducted the major empirical experiments. First, he adopted a method of analysis similar to Beaver's study by applying the Deihotomous classification test and percentage error of each ratio was ascertain. In the second test, discriminant analysis technique was applied using the same sample of data and 14 financial ratios as input to the discriminant analysis programme". It was concluded that the discriminant analysis can be used to predict business failure using ratios as prediction variables three years in advance with a fairly high degree of accuracy.

Marc P. Blum:

Blum in 1969, designed a theoretical model to discriminate between failing and non-failing firms. His model was based on accounting and financial data. He described failure as "entrance into a bankruptcy proceeding or an explicit agreement with creditors which reduced the debts of the company." His sample consisted of 115 industrial units which failed during 1954-58 (with liabilities greater than 1 million dollars) and a paired sample of 115 non-failing firms being similar with respect to industry, annual sales, number of employers and fiscal year. Blum concluded using five years of data prior to failure, that his model had an accuracy of 93 to 95 percent when failure occurred within one year of the statement date. The accuracy declined to 80 percent for prediction three years prior to failure. Blum's primary contribution was the inclusion of ratio-trends and variance (stability overtime) as

predictors. His best overall function contained twelve ratio variables of which time were measures of ratios trend or variance.

**Edmister's Work:**

Robber O. Edmister's purpose was to test the usefulness of financial ratio analysis for predicting small business failure. A small business was defined as one which was started with a loan from the Small Business Administration (SBA), loss borrowers were designated as failure and 19 common ratios and five prevailing methods of analysis were tested. Multiple discriminant analysis is employed to select a set of ratios and analytical methods which best discriminate between loss and non-loss borrowers and guarantee receipt from the Small Business Administration. The major objective of this research is to determine whether or not financial ratios may be analysed so as to predict the failure or non-failure of a small business. He concluded that the predictive power of ratio analysis depends upon both the choice of analytical. Edmistic concluded that three consecutive statement are required for effective analysis of small business.

**Libby's Work:**

Libby analysed all the 14 ratios used by Beaver and Deakin in their studies, to find out the most important ratios. On the analysis to identify five independent sources of various within the set of 4 ratios, he applied vary max rotation to the financial data. These five varieties were named as: (1) profitability, (2) activity, (3) liquidity, (4) assets balance and (5) cash position. The five ratios viz. (a) net income/total assets, (b) current assets/sales, (c) current assets/current liabilities, (d) current assets/total assets, and (e) cash/total assets were selected to represent the above mentioned five financial dimensions through the analysis of the rotated factor matrix.

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15. Ibid. p. 1479.

Taffler's Model:

Taffler's initial study in 1974 consisted of 61 non-failed and 23 bankrupt firms. He tested 50 financial ratios, using principal component analysis to help avoid multicollinearity problem. A step wise linear discriminant analysis produced a model consisting of the following five ratios:

\[
\begin{align*}
X_1 &= \text{Earning before interest and tax/opening total assets.} \\
X_2 &= \text{Total liabilities/net capital employed.} \\
X_3 &= \text{Quick assets/total assets} \\
X_4 &= \text{Working capital/net work and} \\
X_5 &= \text{Stockturn}
\end{align*}
\]

The first two variables contributed most to the model. He developed three classes of discriminant variables: conventional ratios, 4 year - trend measures, and funds statement valuables. He found that the last mentioned were too volatile for meaningful analysis and the trend measures added very little to the discriminant model. Of these five variables, quick assets/total assets ratio was also tested by Beaver, but was not included in his set of six good performing ratios.

Taffler and Tisshaw Model:

Taffler and Tisshaw developed a 'Z' model for the prediction of company insolvency and the evaluation of corporate creditworthiness by banks, investment houses and credit controllers. To construct a solvency model, a statistical technique known as 'linear discriminant analysis was applied to a sample of 46 failed firms and 46 financially sound firms matched by size and industry. Eighty different ratios were calculated for each of the 92 companies. Failure was defined as the firms entry into receivership, creditors' voluntary liquidation, compulsory winding up by order of the court or government action undertaken as an alternative. Extensive statistical analysis finally isolated that set of ratios which discriminated best between the two sets of

firms and resulted in the following discriminant function:

\[ Z = C_0 + C_1 R_1 + C_2 R_2 + C_3 R_3 + C_4 R_4 \]

where

\[ Z \] = discriminant score

\[ C_0 \] = a constant

\[ C_1, C_4 \] = the ratio weights or coefficients

\[ R_1 \] = profit before tax/correct liabilities

\[ R_2 \] = current assets/total liabilities

\[ R_3 \] = current liabilities/total assets

\[ R_4 \] = no credit interval ratio (current assets minus current liabilities to operating cost excluding depreciation)

The four ratios, taken together measure the risk profile of the firm which was summarised by the single number, its Z score. It was concluded that: Take profit before tax divided by current liabilities; current assets as a proportion of total liabilities; current liabilities as a proportion of total assets; take into account the no credit interval; mix them in the right proportions and you can tell whether a company will go burst.19

**Wilcox's "Gambler's Ruin" Model:**

Wilcox\(^{20}\) noted the similarities of the four propositions stated in Beaver's 1966 article to the classical gambler's ruin problem in probability theory. In the model the firm is the gambler and bankruptcy occurs when its net worth falls to zero.

He calls his model the "Gamblers' Ruin" approach. The model assumes that at any moment, the firms financial state can be defined by its "adjusted cash position" or "net liquidation value". The liquidation values for assets and debts are defined by Wilcox rather arbitrarily as follows:

<table>
<thead>
<tr>
<th></th>
<th>Liquidation value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash equivalents</td>
<td>- 100</td>
</tr>
<tr>
<td>Other current assets</td>
<td>- 70</td>
</tr>
<tr>
<td>Cong. turn assets</td>
<td>- 50</td>
</tr>
<tr>
<td>Debt</td>
<td>- 100</td>
</tr>
</tbody>
</table>

The 'net liquidation value' or 'adjusted cash position' of the firm is the liquidation value of assets less the liquidation value of debts. The liquidation value changes from year to year by inflows and outflows. The financial states of the firm can either improve, remain the same, or worsen from one period to another. Wilcox assumed that the change in financial state takes place always by a fixed amount, levelled as size of the bet or $S$. If the probability of the firm's gaining a bet is $P$ and that of losing it is $Q$. Then unless $P$ exceeds $Q$, the firm is bound to fail, the length of period to the time of failure being determined by the size of the firms net liquidation value in combination with the size of probabilities of inflows and outflows of liquid resources.

Wilcos claims great success for the prediction model on the basis of a sample study. However, applications of the model have been disappointing as it assumes that periodic cash flows are independent of each other.

Now the few studies, though scanty, conducted in India for the prediction of sickness or failure status of a firm are summarised as under:

L.C. Gupta's Work:

Gupta\textsuperscript{21} took a sample from a homogenous industry cotton textile and tried to extend it to non-textile units as well. His sample included 41 textile companies, of which 20 were sick and 21 non-sick. The matching of non-sick units was done on the basis of product, age and size measured in turns of paid-up capital, assets, and sales. He studied 56 ratios, classified into two broad categories: profitability ratios

and balance sheet ratios. A simple non-parametric test for measuring the relative differentiating power of various financial ratio was used. Five profitability ratios were finally selected which individually had shown to possess highest predictive power when applied to homogenous industry group. To minimise misclassification rate he recommended a combination of the following four profitability ratios:

i) EBDIT/sales  
ii) OCE/sales  
iii) EBDIT/total assets plus accumulated depreciation, and  
iv) OCF/total assets plus accumulated depreciation.

Dr. Gupta's empirical testing revealed that the predictive power of the traditional liquidity ratios was very poor. To some extent this could be attributed to window-dressing and to non-disclosure of some important liability items. Further, he observed that while in the early year of the company the predictive power of OCF and EBDIT is more or less the same, in the later years, OCF is more important as sick firms rely more and more on borrowed funds.

V.S. Kaveri and S.P. Singh:

V.S. Kaveri and S.P. Singh\textsuperscript{22} examined the prediction of sickness in Small Scale industry. They used a stratified sample of 200 small industrial units, stratified on the basis of line of manufacturing, size, age and type of organisation. For the firms selected, balanced sheet and income statement data were collected, twenty two ratios were examined and the following five ratios were picked as the most significant:

a) current ratio  
b) stock/cost of goods  
c) current assets/net sales  
d) net profit (before taxes)/total capital employed

e) Net worth/total outside liabilities

In regard to accuracy of the discriminant function, it is stated that it is reasonably high having correctly classified 76 percent of the sample while taking into account the irregular event which is also predicted along with the good and side events. The paper makes following observations about the findings of ratio trend:

1. Average current ratio of good firms is higher than that of irregular and sick firms which maintain higher average level of stock than that of good firms. Thus the good firms can rotate their current assets faster, have a higher earn capacity, and have relatively lower debt burden as compared to irregular and sick firms.

2. Mean difference between good and sick firms for each ratio is widen than the mean difference between good and irregular firms indicating that position of sick firms for each ratio is worse.

3. All the observed ratios show a deteriorating trend as irregularity and sickness are approached.

Paranjape’s Work:

Paranjape\textsuperscript{23} used 54 sick and 54 non-sick textile firms. He tested 16 financial ratios and found that the following four variable subset discriminants better between sick and non-sick firms:

i) Raw material consumed/sales

ii) Inventory/current assets

iii) Retained earnings/total assets, and

iv) EBIT plus depreciation/total liabilities

He has claimed that his model predicts sick and non-sick firms with 90 per cent accuracy one year prior to sickness.

S.S. Srivastava's Work:

A combination of operational, technical and financial parameters was used to discriminate between the sick and healthy units. He developed a linear discriminant function comprising seven ratio parameters i.e., five financial, one technical and one operational. These ratios were net worth/total assets, net block/net worth, net profit/total assets, total liabilities/net worth, current assets/current liabilities, capacity utilisation ratio and plant utilisation ratio. Initially a computer model was built up using three financial ratios and predictive accuracy of the function was computed.

The classification error rate was 15 per cent of this linear discriminant function which reduced to 10 per cent when only five financial ratios were applied. It further reduced to 5 per cent when first three ratios were combined with technical and operational ratio. The model was enlarged to include all the seven variables which resulted in 100 per cent predictive accuracy of model at 10 per cent level of significance.

Nagaraj and Srinivasan:

Nagaraj and Srinivasan classified the causes of sickness under two broad categories i.e., external causes and internal causes. The external causes are:

a) Government policies
b) Sudden and wide fluctuations in the demand for the product.
c) Shortages and irregularities in the availability of raw materials.
d) Continuous rise in the cost of production and distribution.
e) Inability to execute the project according to schedule and
f) Procedural delays resulting in long gestation periods etc.

The internal causes have again been divided into four categories; viz,

a) Marketing
b) Production
c) Financing
d) Organisation

Nalini V. Dave:

Nalini V. Dave in her PhD. thesis in 1987 entitled "Industrial Sickness and Key Areas of Management" has examined the strengths and weaknesses of management practices in textile units against the norms laid down by various authorities of management science. The most significant contribution of her study is to examine the linkage between quality of management practices and the problem of industrial sickness, quality of management of sick units and would be sick units has been found to be lower than that in healthy units. Although impact of adverse external environmental forces cannot be eliminated completely, yet a management with proper foresight can plan to meet with such forces. She considers quality of management to be an important determinant of health of any enterprise. She had taken up nine textile mills divided into three categories; sound mills, sick mills and other mills. Each category has three units. In the analysis of financial statement, 15 financial ratios are utilised. The ratios are broadly classified into three categories (a) liquidity ratios, (b) profitability ratios, and (c) solvency ratios. As per her study, companies of 1st group (sound mills) enjoys comparatively good gross profit on sales as well as on their total gross assets. But their cash profit again on both sales and total gross assets is not impressive. The companies of 2nd group (sick mills) are having satisfactory gross profit on its sales as well as assets, but its cash profit on its sales and assets is negative. For companies of 3rd group (other mills) also cash profit on sales and assets is much poor than gross profit on sales as well as assets. The analysis of balance sheets from traditional ratio-analysis gives enough warning to the management about the weakness and potential problems.

S.N. Bidani and P.K. Mitra:

Bidani and Mitra in their book entitled "Industrial Sickness - Identification and Rehabilitation" have stated that industrial sickness develops gradually and is not an overnight phenomenon. But the financial institutions are usually kept in dark.

till the concern enters into a critical stage. If the financial institutions are taken into confidence at the initial stage, when the problem arises, the diagnosis and treatment would certainly be much easier. The book deals with the subject of industrial sickness right from the stage of identification to rehabilitation and follows up the nursed units till they attain normal stature. The book is intended for bankers and persons working in term lending financial institutions and consultants under taking studies for revival of sick units. It emphasises on constant and continuous watch on the transaction in the accounts of borrowers with the bank. The study is concerned with how to tackle the problems from banker’s point of view.

**Reports of committees for tackling problems of industrial sickness:**

Government of India has constituted committees from time to time to deal with the problems leading to industrial sickness. Number of papers were published and studies conducted by the individuals, banks, government organisation on the subject of industrial sickness and also committees were constituted to look into the different aspects of industrial sickness. Symposia, debates, workshops, seminars and conferences are/were being held throughout the country at different places to share views on the problem of sickness so as to come-up with policy implications in the control of this endemic problem. Also sick small scale unit holders have formed associations and sick forum cells to plead the apathy of the sick industries with the concerned government agencies. Investigation into the malady of industrial sickness in small scale industries will continue till the real causes are diagnosed and this socio-economic problem controlled. The committees have not made any empirical analysis of the problems of industries. They have studied various administrative hurdles in the effective implementation of action plans and have suggested certain reforms. A few of them are as follows:-

**Study team report of State Bank of India:**

In the year 1975, the study team of the State Bank of India, which was headed by Mr. J.S. Varshneya examined 120 small scale units with aggregate borrowing in excess of Rs. 2 lakhs. The team found that 100 units were in the unsatisfactory group and barely 20 were in the success group.
Among the other different factors, which were responsible for extensive sickness in small scale industry, the most important was lack of management expertise and lack of adoption of sound business principles in running the enterprise. This was, therefore, corroborated by the following findings:

a) Most of the units had a poor equity base which limited their capacity to overcome difficult times.

b) Established units, even during period of good business, did not make any effort to build-up internal financial strength to provide for contingencies. They exercised no financial discipline and therefore, committed their funds in various medium term investments or increasing overheads and thus the liquid funds needed to meet the requirements of current liabilities fell in short supply.

c) When a unit was in trouble, it got further in to trouble by borrowing and thus resorted to borrowings at high interest to withstand its short term difficulties. Therefore, in this process, small scale industry went deeper in to trouble and fails to extricate itself.

d) The small scale units lacked experience in both technical as well as/or managerial ability. From here the study team, therefore, suggested a detail and comprehensive monitoring system which consists of submission of monthly/weekly returns which are : management information system; endues of additional funds and monitoring of areas of weakness.

**Entrepreneurial Development Programme in Gujarat:**

The study covered 248 units in Gujarat which were considered to be performing unsatisfactorily. The study revealed the following:

i) Performance of the enterprise is positively associated with the age of the entrepreneur. As the age of the entrepreneur improves, performance also improves.

ii) 63 per cent of the student performed very poorly as entrepreneurs. Performance of professionals covering managers, senior executives, professors, etc. was very commendable as the failure rate in this category was only 9 per cent.

iii) Labour problems were the least important causes of failure in small-scale industries.
Survey of mortality of small-scale units in South India, 1976:

H.K. Mazumdar and A. Nag of the Indian Institute of Economics, Hyderabad conducted a survey of the non-existing units in the states of Andhra Pradesh, Kerala and Karnataka to study the causes of mortality among the small scale units. A sample of 1750 units was surveyed for the period September 1974 and March 1975. The findings of the study revealed the following:

i) More than 40 per cent of the dead units in each of the state of Andhra Pradesh, Kerala and Karnataka did not have a life span of more than two years: that 75 per cent of the units died in the second year and about another 20 per cent in the third year. In other words, the infant mortality rate was very high among the small enterprises.

ii) Dead units are characterised by low employment levels and average employment in about 60 per cent of the dead units did not exceed five and in about 90 per cent of the units did not exceed nine.

iii) The dead units suffered heavily on account of under utilisation of capacity. This was a chronic feature since average utilisation of capacity was as low as 36 per cent. Three factors amounted for under-utilisation of capacity: lack of finance to meet working capital needs, lacks of demand and non-availability of adequate raw material supply.

The study, therefore, reach on the conclusion that the most important as well as major causes of mortality in small scale units are the lack of finance and non-availability of adequate raw-material supply. The study also find that inefficiency in management, specially in the field of financial management is one of the most important cause, which is responsible for mortality in small scale industry.

Study of small scale units of Haryana state - 1979:

The Haryana State Unit of the All India Federation of the Small and Rural Industries, submitted a memorandum on the April 14th, 1979 to Union Minister of State for industries and in that memorandum it was pointed out that the basic factors which was responsible for sickness in small-scale industries, was the fact that most
of head of 'authorities' do not pay the ancillaries for six months or even longer after the purchase of goods. And, therefore, if the ancillaries dare to protest against erratic payments, the head authorities threaten them to stop purchasing of their products. The memorandum drew attention to the blatant thing sad reality that nearly 60 per cent of the 'sick' small and rural units would not have gone sick had the 'principal's not delayed the payments for more than four months.

**FICCI survey on sickness in small scale industries - 1988:**

The FICCI survey 1988 showed that insufficient or delayed receipt of working capital and heavy dependence on other sources of finance was the most important causes of sickness. Finance as whole, both long term and short term accounts for a large number, i.e., about 43% of sickness. The second factor which affects the viability of small scale industries units is their inability to sell because they cannot make expenditure on expensive advertisement and salesmanship. When the parents fall sick, the ancillaries inevitably suffer. The wayout suggested by FICCI survey is the policy of product reservations which can prevent sickness. FICCI survey has emphasized that measures to prevent sickness are much more important than efforts at rehabilitation.

**High power committee constituted in - 1978:**

A high powered committee was constituted in 1978 under the chairmanship of the Union Finance Minister to discuss the problems of sick industrial units and the role of banking system in their rehabilitation. The important decisions of the committee concerning small scale sector were:

a) to set up a separate cell at the top level for looking into the complaints received from small scale units and for taking correct line follow up action;

b) banks to provide consultancy service to such class of entrepreneurs;

c) to bring altitudinal change in their personnel in dealing with cases of sick small scale units; and

d) small entrepreneurs, banks to refer cases of units to IDBI for package of measures where they are not able to provide assistance required like term funds, interest free or low interest funds and other concessions.
Standing co-ordination committee in - 1979:

The Bhucher Committee was constituted by RBI in September 1979 for considering policy issues pertaining to co-ordination between banks and terms lending institutions. They were also to examine rehabilitation measures needed for an industrial sector as a whole including small scale industry, where several units are affected by sickness.

The committee discussed the issues relating to concept of potential viability, rehabilitation of sick units such as financing cash losses, sharing of securities and treatment to overdue interest on working funds provided by banks to sick units and suggested suitable guide lines to follow.

State level inter-institutional committees:

State level inter-institutional committees have been set up at important centres in various states. These are represented by the concerned state governments, financial institutions, banks and Reserve Bank of India as convener. These committees provide adequate interfacing between state government officials and state level institutions on the one hand and the Reserve Bank, term lending institutions and banks on the other. These committees provide a useful forum for exchange of information and discussions on problems faced by small and medium industrial units. Lately these committees are also considering the cases of those sick units which could not be rehabilitated for want of co-operation from government and/or other agencies including the management of units itself so that the potentially units can be promptly rehabilitated.

Hasib Committee - 1986:

The Reserve Bank of India had appointed a committee under the chairmanship of Shri A. Hasib, Executive Director to consider various aspects relating to definition of sick small scale industry units, identification of incipient sickness in small scale industry units and formulation of parameters for granting relief/concessions to the sick small scale industry units. This committee submitted its reports in October, 1986.

On the recommendations of the report, RBI issued a circular in February 1987 which covers various aspects relating to rehabilitation of sick small scale industrial units. With a view to supplement the efforts of State Government in reducing
the incidence of sickness among small scale units, and ensuring better utilisation of
installed capacity, central government evolved a margin money scheme for revival of
sick small scale units. In order to make the scheme more effective, a review was
undertaken in consultation with the state governments. In view of this, a token
provision of Rs. 1 lakh was made in the central Budget for 1986-87 and no sanctions
were made to the state government during the year. 28

Andhra Pradesh State Financial Corporation - 1976 :

In a study conducted29 by the Andhra Pradesh State Financial Corporation
in November-December, 1976, covering 618 assisted units spread over the entire
state, found that as many as 94 units were lumping and 108 units were sick. Out of
108 sick units, 56 (51.85%) units become sick because of managerial problems,
disputes and lack of interest among the partners; 18 (16.67%) units became sick
because of financial problems and lack of margin money for working capital, coupled
with inadequate bank finance for working capital; 20 (18.52%) units become sick
because of production problems - lack of raw materials, lack of power, etc., and 14
(12.96%) units became sick because of lack of market.

National Census of Small Scale Industries30 :

According to the census of small scale industries of the 2,99,186 units
registered with the state Directorate of Industries, as many as 32,315 or 11 percent
were not traceable, another 66,161 or 22 per cent were permanently closed. The
closed units were grouped into five categories :

a) cumulative mortality of units
b) units which have changed their addresses;
c) units which closed down permanently;
d) units which could not be located because of incomplete addresses
e) units not in existence and which have misutilised raw materials and other
facilities.

28 Development Commissioner, Small Scale Industries, New Delhi, 1986-87
29 Sankaraguruswamy, D., "Problems of Sick Industry in Small Scale Sector," Seminar on
Rehabilitation of Sick Industry in Small Scale Sector - Background papers, Directorate of
30 Development Commissioner, Small Scale Industries, "Report on the Census of Small Scale
Industries Unit" 1977, vol. I & II.
Sick units in Vidarbha:

The Vidarbha Industries Association constituted a study team of knowledgeable persons to make a survey of sick units. The study was a limited one, and dealt with such major problems as finance and the policies and procedures of credit agencies as well as the difficulties that were encountered in marketing the products of the small sector. The study stated that most of the difficulties of small-scale units arise from financial and administrative reasons, spiralling interest charges and recession in demand tend to make units sick. The requirements of credit of small scale units located in far away places are higher than those located at an industrial centre because the former have to maintain bigger inventories; and institutional financial agencies have failed to act as sentinels of progress, growth and employment. The study team observed that Government financial agencies have not been able to play their part in the development of small scale industries in under-developed regions of Vidarbha. It has, therefore, recommended the setting up of a Regional Development Corporation, which may finance sick units and help to market their product.