An Analsis on the Economic Aspect of a Selected Flour Mill in Coimbatore District with Reference to Selected Economic Variables

BY

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Introduction

C H A P T E R - I

1.1 Introduction:

Rice and wheat, the staple food of South and North India respectively are the two most important crops produced by Indian farmers. India is the second largest producer of rice in the world, producing 90.5 M. tonnes (19.5% of world production) in 1985 to China's 170 m. tonnes (36.7% of world production). In wheat, India occupies the 4th position with 44.2 m.tonnes (or 8.6% of world production) against 86 m. tonnes by China, 83 m.tonnes by the USSR and 66 m. tonnes by the USA. In percapita terms, paddy production in India has remained at nearly the same level-93 Kgs in 1952 and 98 Kgs in 1983. On the other hand, wheat has shown a tremendous increase from 20 Kgs in 1952 to 59 Kgs in 1983 and an estimated 69 Kgs in 1990; due to increase in productivity through modernization and the other inputs of the green revolution, wheat is now the most important cereal in the diet of developing country like India. In the Indian diet about 2/3 rds of the calories come from cereal foods. Wheat before consumption has to be milled,

In the flour mills, wheat is first cleaned and wheat grain is broken down in the successive stages of the milling process, where it emerges as flours, middlings and

bran. A complete milling function involves seven basic operations such as

1) Elevator storage (Wood steel or concrete)
2) Cleaning and tempering
3) Roller grinding
4) Bolting (or sifting)
5) Purifying
6) Bleaching
7) Packing and shipping.

The industry is thus the processor and convertor of wheat in to such forms of wheat products which are consumed by the domestic consumers and used as raw materials by the other food industries.

1.2 Flour mills in India:

Roller flour milling, included in the list of small scale industries is one of the oldest and largest agro-based Industry in the country with an estimated turnover of Rs. 2000 crores. It is an essential industry as wheat is the largest cereal produced by the country and cannot be eaten unless milled. The industry supplements the government's public distribution system by making available raw materials to other wheat based industries which supplements the dietary needs of the comman man. Presently there are about 500 roller flour mills in the country with its annual capacity of about 10 million tonnes (APPENDIX I). In Tamil Nadu, there are 46 roller

flour mills as on 29-12-88, functioning with a total capacity of 14,01,642 tons. It is the largest food processing industry in the organised sector. It mills annually 7 million metric tonnes of wheat. The Roller Flour Milling Industry was a licensed industry till 1986. After the record agricultural production during the year 1983-84, facing with surpluses in the agricultural produce particularly of wheat, the milling industry was delicensed in 1987. Since 1987, the industry procures its raw materials from the open Market.

1.3 Supply of wheat to the flour mills:

Wheat being the raw material of the Roller Flour Milling Industry, its working depends entirely on the availability of wheat, so, from the industry's point of view, there should be steady increase in the availability of wheat so that the industry can meet the increasing demand of wheat products by house hold-consumers, hotels, restaurants and wheat products based industries like bread, bakeries, snack foods, etc. Any decrease in the availability of wheat to the industry means closing or partial working of mills, non-utilisation of industrial resources, unemployment etc.

Government was controlling all the aspects of milling industry until July 1986. The industry was governed by special regulations under IDR Act. Controls were placed on the supply of wheat and marketing of products and their prices through licensing under essential commodities Act. But with

the comfortable stocks of wheat, these controls were removed in 1986, and the mills were allowed to purchase wheat from any source including FCI. During January-March 1988, additional requirements of the mills were met by auctioning wheat stocks at various consumption centres in the country. Production, procurement and stock position of wheat (APPENDIX II) indicate the fall in all these in the last few years with the weather conditions being unfavourable. To augment the stock position of wheat, the government has also announced import of about 1 million tonnes.

1.4 Problems faced by the flour mills;

Inspite of all the measures taken, the flour mills still face the inadequate supply of wheat at the proper time. Restrictions of the Government in the movement of wheat outside their states created abnormal distortions throughout the country leading to wild fluctuations in wheat prices and its availability.

There has been no consistent policy with regard to supply of wheat to this industry by Food Corporation of India.

The qualities of wheat required by the mills are of different types depending on the grades of maida and sooji that they produce, such as bread flour of good quality can be made from hard wheat with high percentage of protein.

But to encourage production of specific varieties of wheat required by the roller flour mills, schemes have not been drawn up to have direct arrangement with the farmers by assuring them to purchase wheat so grown.by them at pre-determined prices. The mills have no direct contact with the farmers.

Many of the flour mills are quite old and the technology has become outdated. The cost involved in modernisation is a burning problem faced by the industry.

The food items are subjected to sales tax at varying rates by many state governments.

1.5 Suggestions in Fostering the Growth of Flour Mills:

To foster the growth of roller flour mills, the government should not adopt normal or abnormal restrictions in the form of stock limits on wheat procurement or credit squeeze under selective credit control.

The surplus states should be directed not to ban movements of wheat on mills account, Outside their states as this violates the principle of one wheat zone in the country. The industry is need of replacement, innovation and modernisation. To achieve greater efficiency both at the plant and production level, technology upgradation in all areas should be made with government's assistance.

Since delicensing, the working capital requirements of the industry have increased. Hence the

industry should be supported by financial institutions for need based funds towards its working requirements.

A separate panel to discuss the pros and cons of important matters concerning the industry can help in the promotion of the industry.

1.6 Steps taken to foster the Growth of flour mills:

The ministry of Industry announced in 1986 that such of those mills who have modernised their plants could came upto them for endorsing their licensing to an increased capacity up to 49% in case the increased capacity has been the result of modernisation taken by the industry. To encourage the industrial units to maximise their production during 1988-89, 1989-90, Ministry of Industry have introduced a scheme.

A series of milling seminar are also conducted to provide expert technical knowledge on raw material methodology. Mill management, developments on flour milling technology, insect control in flour mills energy management conditioning etc.

The International School of Milling Technology (ISMT) started in 1981 has been rendering service to the flour milling industry, by way of conducting 10 months regular courses and short courses (APPENDIX III).

The wheat products promotion society registered in April 1988, has the main objective of achieving in the long

run larger consumption of wheat products especially in non-wheat producing areas.

Objectives of the study:

The investigator tries to analyse the working condition of APEX ROLLER FLOUR MILL in Coimbatore District with the following objectives.

1) To study the capital structure of the selected mill.

2) To analyse the trends in production, cost and profit of the selected Roller flour mill and,

3) To study the problems faced by the mill.

Need for the study:

Roller flour mills, being a link in the chain of supply of food based on wheat products, its an interrupted running is a matter of serious concern. Hence a study on the working condition of the flour mill with respect to certain economic variables will throw light on the operation of the industry and the steps to be taken for the better improvement of the industry.

Review of Literature

CHAPTER - II

REVIEW OF LITERATURE

The Literature pertaining to the current study on "An Analysis on the Economic Aspect of a Flour Mill in Coimbatore District with reference to selected Economic Variables" was discussed under the following headings in this Chapter.

Since the study was an Flour mill which is a food processing, agro based small scale Industry definitions of these industries were discussed first, then the various studies pertaining to the Indian Flour Milling in India were discussed.

2.1 Definitions

- a Small scale Industries
- b Agro based Industries
- c Food processing Industries
- d Modern Milling

2.2 Studies on Flour Milling Industries in India

2.3 General Studies on Flour Milling

The definition on small scale industry is subject to changes from time to time.

In 1955

The First significant definition on small scale industry was made in 1955. "A Unit employing less than

50 persons using power and less than 100 persons without the use of power with capital assests not exceeding Rs. 5 lakhs".

In 1960:

The limit in terms of number of persons employed was deleted. The investment in fixed assets was to be valued at the price paid by the owners.

In 1966:

The limit was raised to Rs. 7.50 lakhs Investment in fixed assets in land and buildings had to be ignored for computing the size of the limit. Investment in fixed assets in plant and machinery had to be taken into consideration at the original purchase price.

In 1967:

An undertaking engaged in manufacturing and processing (non-trading) in which capital investment in plant and machinery was not in excess of Rs. 7.5 lakhs was a small scale industrial unit.

In 1975:

The maximum capital capacity of a small scale industry was raised to Rs. 10 lakhs.

In 1978:

A small scale unit is any unit engaged in the manufacturing, processing or preservation of goods with investment in plant and machinery, at original cost not exceeding Rs. 10 lakhs.

In 1980:

The limit for small scale units raised to Rs. 20 lakhs.

In 1982:

All service oriented enterprises were also eligible to be registered as small scale establishments provided they are set up in rural areas and towns with a population of 5 lakh or less and subject to a ceiling on investment in plant and machinery of Rs. 2 lakh.

In 1985:

The investment limit in the definition of small scale industries was revised upward in 1985 from Rs. 20 lakh investment in plant and machinery to Rs. 35 lakh.

Agro Based Industries:

The Union Development Commissioner for small Scale Industries has classified, all enterprises connected with the processing of agricultural produce and farm wastes and industries related to canning or processing of fruits and also those providing cold storage facilities and industries producing chemicals of plant fibres, forest produce and some marine based ventures in the list of agro-based industries.

The list prepared by the planning Commission has included (i) agricultural processing and allied industries and (ii) import required for agriculture, animal husbandry, fisheries etc.

Food processing: Duncan (1949) defined food processing as follows:

Processing means a series of actions or operations definitely leading to some desired end. The word is used frequently in connection with manufacturing; as, for example, the "process" of making steel.

When applied to food, the term means all those "actions" or "operations" which lead to the "end" of keeping, in whole some condition, food required for consumption at some later date.

This processing includes canning, drying, pickling and freezing. It includes butchering, butter-making and all changes in the form of food as it is made ready for consumption. Processing includes all the services rendered by the food industries.

MODERN MILLING:

The modern milling seperates the floury portion of the wheat berry or grain from the hard outer coat of bran.

Wheat flour institute gives the following information about milling processes;

One of the changes for the better working by mechanical milling is the absolute cleaniness of the materials

produced by it. Before actually entering the milling process, the grain is first dry cleaned and then thoroughly scoured, so that all particles of dirt which may have clung to it through the threshing and binning processes are removed.

After cleaning, washing, and tempering, the wheat then passes through corrugated steel grinders called the first break rolls. At this stage flaky pieces of bran and curshed white endosperm are all in one mixure termed the first break stock. By a continous process involving many grindings, siftings, and seperations, the endosperm is entirely freed from all particles of bran and after being finely ground and forced through very close-meshed silk, is packed as pure white flour. Mean while, in the course in the milling process, other products have been manufactured, such as graham and whole wheat flour, 'middlings' or 'farina' which is a break fast cereal, and 'shorts', a branny live stock feed.

The large mills of the country are located in the great cities closest to the major grain growing sections. Among these cities are Minneapolis, Duluth, Superior, St. Louis, Milwaukee, Chicago and Toledo.

2.2 Studies on Flour Milling Industries in India:

1) Dhar (1958) in his article on "Flour Mills" had discussed Flour milling Industries in Delhi. He used cross section data taking 55 flour mills in and around Delhi which used power. He analysed capital structure of the Industries in detail.

Sources of finance were also discussed. Extent of utilised and unutilised capacity, number of labourers employed and materials also were discussed. In those industries which employed less than 10 workers average fixed capital employed was less. The larger units, because of the diversification of the economic activities had to have a higher amount of fixed capital. Proprietors formed the most important source of finance. Mostly hired labourers were employed in the industry. About 50% of unutilised capacity remained in the industry.

2) Majumdar (1970) in his article on "Development of Flour Milling Industry. Its future Approach had discussed the growth of the flour milling Industry in India. He remarked that the flour milling industry had to improve its condition by better utilisation through the introduction of Modern Methods and Machineries.

Narendra Vithaldas (1970) in his article as "Roller flour milling Industry in India" had discussed the growth of Roller Flour Milling industry in India. His study also discussed the recent developments that took place in the flour milling industry.

Kabra (1972) in his article as "Processing and industrial utilization of wheat had brought out the problems faced by the millers in India. The problems listed where as follows I) The millers had no possibility of a proper blending of wheat to produce a suitable maida for the desired and that

the mills had to sacrifice their quality and good will on account of poor quality and non-categorised wheat supply by the FCI.

2.3 General Studies:

In his paper presented in the 13th International grain industry, held in Canada in 1981, Rogers, the milling technician at the Canadian International Grains Institute, reviewed the improvements in machine design, which had enabled the modern mill to be reduced to about one third the physical size of a mill 40 years ago. He also discussed how the latest wheat cleaning took place in the flour milling.

Felix Maramba Jr. (1982) in his article "Tthe Flour Milling Industry in the Philippines" had discussed the production of wheat, and problems faced by the flour milling industry in Philippines. His study revealed the surplus supply of flour by the milling industry to the domestic market. The limited berthing facilities in the Manila' part was one of the major problem faced by the flour milling industry in Philippines. He had suggested the Goverrment's assistance to over come the problem.

In the article "Flour Milling" in milling Feed and Farm Supplies" (1983), the problems faced by the flour milling in Britain and Nothern Ireland were discussed. The study revealed that the profitability of the Flour Milling Industry in Britain and Northern Ireland had been dependent on the cost of wheat and the state of the National Bread Market.

11) Robert Clancy (1985) in his article "Flour Storage- a look at the options' discussed the pros and cons of the various options available and high lightened some of the general characteristic of flour as a substance. He had also discussed the hazards of flour storage. The activities which are hazardous in a flour storage areas are welding and lowering of inspection lamps into bins. The author suggested the use of magnets throughout the flour milling and to encourage storage systems pieces of metals should not be found in the conveying, grinding area to avoid dangerous sparks. To prevent dusts to settle in flour, ledges, step & should be avoided and basements should be kept clean. It was also suggested not to lower a lamp into a bin.

In the editorial the "Indian Miller" (1985) stated that for the promotion of exports of wheat and wheat products from India, a judicious policy of subsidies should be taken. It suggested the relaxation in the restrictions and controls on grinding and distribution of wheat products by the flour mills in the domestic market. How best to store flour has always been an area of concern for those involved in the milling industry.

Pankaj Moona (1988) in the article on 'Wheat Germ' had discussed the great potential of wheat germ-a by product of the milling industry. The study revealed that by seperating germs in flour mills in India, with installed capacity of about

8 million tonnes per annum and extracting, 75% germ on an average, 45,000 tonnes of germ could be used for fortification of protein in many processed food products, besides creating additional revenue generation potential for the Flour Milling Industry.

Dr. Ing. Gupta (1988) in his paper on "Improvement in productivity through modernization and use of modern technology' defined productivity in a Roller Flour Mill as "Maximum quantity of a quality product at a maximum extraction percentage. It also means economical production and better up keep of plants and equipment." The paper discussed that with (a) tailor made mill buildings (b) proper selection of machines and equipments- (c) Proper selection of conveying system (d) proper conditioning of wheat (e) conservation of electric power and (f) best use of man power an improvement in productivity could be achieved.

Walter Hirsch (1988) in his article on, "Flour Milling Management" had discussed the need for efficient management of flour milling industry and the functions of management to achieve the same.

Methodology

CHAPTER - III

METHODOLOGY

Methodology adopted for the study on "An Analysis on the economic Aspect of a selected Flour Mill in Coimbatore District with reference to selected economic variables" was discussed under the following headings:

3.1 Area of the sample

3.2 Period of the study

3.3 Sources of data and

3.4 Quantitative Techniques

3.4.1.Mathematical tools

3.4.2.Statistical tools

3.4.3.Econometric tools.

3.1. Area of the sample:

The Investigator for her study on Flour Mills had selected APEX ROLLER FLOUR MILLS (P) Ltd in Coimbatore District. Being a leading flour mill in Coimbatore District the industry was selected. Besides the management of the industry was willing to provide the investigator with the necessary data.

3.2 Period of the study:

As data pertaining to the study were available only for the period 1980-1987. The investigator had to restrict her analysis only for this period.

3.3. Sources of Data:

Data were collected, from primary & secondary sources. Balance sheets maintained by the Industry were

referred to collect the necessary data. Personal interview schddule was also administered (ANNEXURE I) to the management.

3.4 Quantitative Techniques:

The data obtained for the study were analysed using mathematical, statistical and econometric techniques. exponential growth rates were also found out.

Mathematical tools:

The mathematical tools used in the study were (1) differentiation, and elasticities.

Marginal Analysis is a key role in economic analysis. Marginal values of the variable were obtained using differentiation. $y = f(x)$ marginal value $= \frac{dy}{dx}$

Elasticity gives the proportionate change in one variable, when, there is a proportionate change in the explanatary variable. This enables the producer to know the response of the variable when he makes business decisions.

Elasticity of y iwith respect to $x = \frac{dy}{dx} \frac{x}{y}$

Statistical tools:

The statistical tools applied in the analysis were, (1) correlation coefficient. (2) Graphs & diagrams. correlation coefficients give the relation between any two or more than two variables. The extent with which a particular variable changes for a change in another variable can be explained through

[P.T.O]

correlation coefficient. This is generally denoted by the letter r.

Graphs and Diagrams.

Graph is a simple and accurate devise to represent the data. Trend lines were graphed in this analysis.

Diagrams.

Diagrams are the easiest way of representing data. Bar diagram was used in this analysis for comparing the variables.

Econometric Tools;

The Econometric tools used in this analysis were,

(1) Simple linear kepression equation.

(2) Multiple linear Repression equation.

(3) t ratios and R^2

(4) Cobb Douglas Production Function

(5) Exponential growth rates.

The relation between any 2 variables can be expressed in the simple linear repression equation as

Y= $Y = a+bx+u$

Y = dependent variable

X * Independent variable

U = Randam Term

OLS Method was used in estimating the analysis, since, OLS method gives best linear unbiased estimators. The steps to estimate a & b are given as follows.

$$b = \frac{\Sigma (x - \bar{x})(y - \bar{y})}{\Sigma (x - \bar{x})^2}$$

$$a = \bar{y} - b\,\bar{x}.$$

b gives the unit change in y for a unit change in x.

Multiple linear Repression equation;

Let $Y = B_0 + B_1 x_1 + B_2 x_2 + U$.

$$\text{Let } D = \begin{vmatrix} \Sigma (x_1 - \bar{x}_1)^2 & \Sigma (x_1 - \bar{x}_1)(x_2 - \bar{x}_2) \\ \Sigma (x_1 - \bar{x}_1)(x_2 - \bar{x}_2)^2 & \Sigma (x_2 - \bar{x}_2)^2 \end{vmatrix}$$

$$\hat{B}_1 = \frac{\begin{vmatrix} \Sigma (x_1 - \bar{x}_1)(y - \bar{y}) & \Sigma (x_1 - \bar{x}_1)(x_2 - \bar{x}_2) \\ \Sigma (x_2 - \bar{x}_2)(y - \bar{y}) & \Sigma (x_2 - \bar{x}_2) \end{vmatrix}}{D}$$

$$\hat{B}_2 = \frac{\begin{vmatrix} \Sigma (x_1 - \bar{x}_1)^2 & \Sigma (x_1 - \bar{x}_1)(y - \bar{y}) \\ \Sigma (x_1 - \bar{x}_1)(x_2 - \bar{x}_2) & \Sigma (x_2 - \bar{x}_2)(y - \bar{y}) \end{vmatrix}}{D}$$

$$B_0 = \bar{y} - \hat{B}_1 \bar{x}_1 - \hat{B}_2 \bar{x}_2$$

$$R^2 = \frac{\hat{B}_1 \Sigma (x_1 - \bar{x}_1)(y - \bar{y}) + \hat{B}_2 \Sigma (x_2 - \bar{x}_2)(y - \bar{y})}{\Sigma (y - \bar{y})^2}$$

$$Ee^2 = (1 - R^2) \Sigma (y - \bar{y})^2$$

$$\hat{\sigma}_u^2 = \frac{(1 - R^2) \Sigma (y - \bar{y})^2}{N - K}$$

N = Number of observations

K = Parametres to be estimated

$$\text{Var } \hat{B}_1 = \frac{\hat{\sigma}_u^2 \Sigma (x_2 - \bar{x}_2)^2}{|D|}$$

$$\text{Var } \hat{B}_2 = \frac{\hat{\sigma}_u^2 \Sigma (x_1 - \bar{x}_1)^2}{|D|}$$

$$\text{SE } \hat{B}_1 = \sqrt{\text{Var } \hat{B}_1}$$

$$\text{SE } \hat{B}_2 = \sqrt{\text{Var } \hat{B}_2}$$

$$t^* \hat{\beta}_1 = \frac{\hat{\beta}_1}{\text{SE } \hat{\beta}_1} \; ; \qquad t^* \hat{\beta}_2 = \frac{\hat{B}_2}{\text{SE } \hat{\beta}_2}$$

If $t^*_{\hat{B}_i} < 2$; $\hat{\beta}_i$ is statistically significant R^2 explains the percentage variations in Y due to x_1 and x_2.

Cobb - Douglas Production Function . (

Most often used production function in Economics is Cobb Douglas Proudction Function which gives the relation between output and capital and labour as

$$Q = A K^{\alpha} L^{B} e^{U}$$

Q = Output; K = Capital and L = Labour

Taking logarithms on both sides, the above equation can be written in log linear form

$$\text{Log } Q = \text{Log } A + \text{Log } K + B \text{ Log } K + U$$

This is a multiple linear repression equation the parameters of which can be estimated as discussed under ' multiple linear repression equation.'

C - D Production function was used to study the nature of the firm. $\alpha + \beta = 1$ implies constant returns to scale. $\alpha + \beta > 1$ implies increasing returns to scale and $\alpha + \beta < 1$ implies diminishing returns to scale.

and B represent the shore of capital and labour to total output respectively.

Exponential Growth Rates:

Exponential growth rate of the form $Y = a\,(b)^{X}$ was applied to find the growth rates of the selected economic ~~valuable~~ variables.

$$Y = a(b)^{X}$$

taking logarithms on both sides,

$$\log \hat{Y} = \log a + x \log \hat{b}$$

Using OLS method, $\hat{a}$ and $\hat{b}$ were estimated

The growth rate = $(b - 1)\%$

The results obtained using the above analysis were discussed in the chapter " Results and Discussion".

Results and Discussion

Results and Discussion

The findings of the study on "An Analysis on the Economic Aspect of a Flour Mill in Coimbatore District with reference to selected economic variables" were discussed in this chapter under the following headings.

4.1 General Background

4.2 Capital Structure

4.3 Production

4.4 Cost

4.5 Profit

4.6 Problems and

4.7 Marketing

4.1. General Background:

The Apex Roller Flour Mill (Pvt Ltd) situated on Mettupalayam Road in Coimbatore District was established in the year 1975. It ground Maida, Sooji, atta and Bran-by products of wheat. The raw material wheat was purchased from whole sale merchants from other states like Punjab, Haryana, Uttar Pradesh and Gujarat by paying cash. Moreover by submitting tenders floated by the Food Corporation of India also it purchased wheat. Wheat was purchased according to the off take of the finished products.

4.2 Capital Structure:

The term capital is used in different ways. To economists, it stands for wealth, to business men it stands for the total assets employed in the business. Capital is one of the factors of production. The capital structure is made up of debt and equity securities which comprise a firms finance of its assets. Proper capital structure planning will ensure the minimum cost of capital and the maximum rate of return to the equity holders.

The capital structure can be classified according to the purpose for which capital is being used. It comprises the working capital and the fixed capital.

Working capital can be regarded as the life blood of a business. Working capital is closely related with the day-to-day operations of a firm. Working capital broadly consists of 'that portion of the assets of a business which are used in, or related to current operations and represented at any one time by the operating cycle of such items as against receivables, inventories of raw materials, stores, work in process and finished goods, merchandise, notes or bills receivables and cash.

Working capital ensures the efficient operation of the company in getting materials. Besides, it helps to pay all the current obligations promptly.

Fixed capital stands for that part of the capital which is invested in fixed assets, land, buildings, plants, machinery, furniture etc. The amount of fixed capital depends on the nature of the business and the size of the firm.

The capital structure of the firm under study was given in the following table (IV) and also shown in the bar diagram (pp 27 & 27A)

Working capital was high in the year 1986 being Rs. 69,18,389.41 and low in 1984. It increased from Rs. 15,20,321.00 in 1984 to 36,08,727.97 in 1985. The annual percentage variation in this year reached its maximum, 57.87. The following year 1986 also saw an increase in the working capital from Rs. 36,08,727.97 to Rs. 69,18,398.41. But the year 1987 saw a sudden deceleration in working capital from Rs. 69,18,398.41 to Rs. 34,88,897.42. Whereas the working capital showed an increase in 1985 and 1986, the fixed capital showed deceleration. It declined from Rs. 12,61,301 in 1984 to Rs. 10,79,538 in 1985 and to Rs. 10,18,035 in 1986. But in the year 1987, when working capital showed deceleration, the fixed capital showed an acceleration. Excepting for the years 1981, 1983 and 1984, working capital exceeded its Geometric mean during the remaining periods. Out of the 8 years under study, the working capital was less than its Geometric mean only in 3 years namely 1981, 1982 and 1983. ~~The~~ productive

TABLE IV CAPITAL STRUCTURE

666.66666666

S.No. 1	Period 2	Fixed capital 3 (Rs)	Working capital 4 (Rs)	Productive capital 5 (Rs)	3 ÷ 5 6	4 ÷ 5 7
1.	1980	10,41,401	17,44,809.25	27,86,210.25	37.376972	62.623028
2.	1981	8,67,445 (20.05)	27,35,699.49 (36.22)	36,03,144.49 (26.67)	24.074667	75.925333
3.	1982	7,76,677 (-11.69)	32,50,464.65 (15.84)	40,27,142.15 (10.53)	19.286071	80.713929
4.	1983	8,16,793 (4.91)	15,35,880.75 (-111.63523)	23,52,673.75 (-71.17)	34.717649	65.282351
5.	1984	12,61,301 (35.24)	15,20,321.00 (1.023)	27,81,622.00 (15.42)	45,344083	54.655917
6.	1985	10,79,538 (-17.85)	36,08,727.97 (57.87)	46,88,265.97 (40.67)	23.026382	76.973618
7.	1986	10,18,035 (-6.04)	69,18,389.41 (47.84)	79,36,424.41 (40.93)	12.827376	87.172624
8.	1987	10,79,558 (5.70)	34,88,897.42 (-98.30)	45,68,455.42 (-73.72)	23.6307	76.3693
Total		79,40,748	2,48,09,179.93	3,27,43,958.44	220.2839	579.7161
Geometric Mean		980900	2738000	381600		
Co-variation		15.25	53.39			

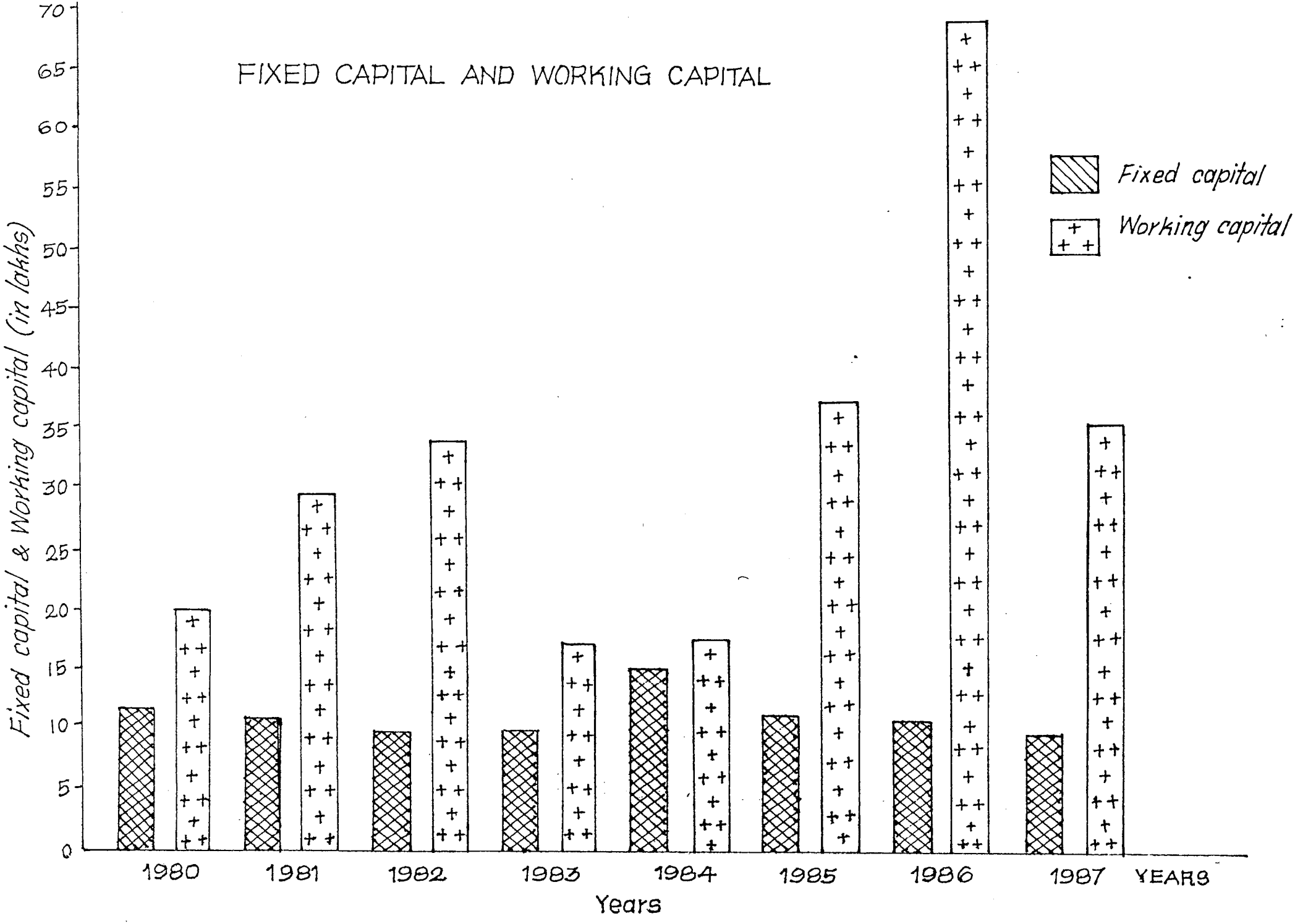
FIXED CAPITAL AND WORKING CAPITAL
Fixed capital
Working capital
Fixed capital & Working capital (in lakhs)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
1980
1981
1982
1983
1984
1985
1986
1987
YEARS
Years

Figure: 1

The productive capital which is the sum of the working and fixed capital was high in the year 1986. It showed deceleration in 2 years Viz during 1983 and 1987.

A wide variation could be seen in the amount of productive capital employed in the flour mill. The reason for this was being, the greater percentage variation in working capital rather than in fixed capital. The co-efficient of variation in fixed capital was only 15.25 percent whereas it was 53.30 percent for working capital. The working capital employed in the flour mill, thus showed variations in each year. It depended mainly on the availability/ non-availability of the raw-materials. The availability of the raw materials Viz wheat fluctuated in each year. The availability being depending mainly on the decision of the FCI.

The proportion of working and Fixed capital to total productive capital calculated and showed in column 6 and 7 of table 1 revealed the greater proportion of working capital in the productive capital. The proportion of working capital mostly ranged between 60 and 85. On an average about 70 percentage of the productive capital comprised of working capital.

The greater contribution of working capital to total productive capital could also be seen from the bar diagram (Fig. 1).

Sources of Capital:

The above analysis clearly exhibited the fact that in running a flour mill, working capital is of vital importance. Working capital, which is required mainly for running the day-to-day operations of a firm, is much needed in the flour mill also to buy raw materials. How the required capital can be mobilised is an important question to be mobilised in various ways either by contributing or by issuing shares and debentures or by borrowing. The way in which capital can be raised in any firm is also a factor determining the borrowing capacity of the firm, as well as the capacity to meet the adequate capital requirements of the firm.

The firm under study raised its capital through shares and loans. The details of the sources of capital of the mill under study was given in the following table V.(P 30)

The long term finance is raised from external sources in the forms of share of equity capital. The flour mill had issued equity capital for Rs. 30,00,000. It mobilised the required capital through reserve surplus, secured and unsecured loans also.

Reserves include surpluses which are not designated to meet any liability, contingency, commitment or diminution in the value of assets which are known to exist

TABLE V

SOURCES OF CAPITAL

S.No.	Period	Capital Equity	Reserve surplus	Secured loans	Unsecured loans	Total
1.	1980	30,00,000 (56.58)	3,35,700.00 (6.33)	14,36,331 (27.09)	5,29,807 (9.99)	53,01,840
2.	1981	30,00,000 (52.16)	3,38,700.00 (5.89)	10,89,293 (18.94)	13,23,960 (23.02)	57,51,953
3.	1982	30,00,000 (49.40)	3,60,500.00 (5.94)	12,59,442.54 (20.74)	14,53,589.84 (23.93)	60,73,432.38
4.	1983	30,00,000 (46.22)	3,60,167.00 (5.55)	15,14,657 (23.34)	16,15,517.35 (24.89)	64,90,341.35
5.	1984	30,00,000 (49.29)	3,42,676.00 (5.63)	20,12,164 (33.06)	7,31,680.00 (12.02)	60,86,520.00
6.	1985	30,00,000 (47.28)	3,45,676.00 (5.45)	12,95,585.34 (20.42)	17,04,053.22 (26.86)	63,45,314.56
7.	1986	30,00,000 (35.73)	3,16,217.00 (3.77)	17,53,420.92 (20.88)	33,27,057.57 (39.62)	83,96,695.49
8.	1987	30,00,000 (47.28)	3,45,676.00 (5.45)	12,95,585.34 (20.42)	17,04,053.00 (26.86)	63,45,314.35

as on the date of the balance sheet. Reserve surplus is made to prevent the dissipation of surpluses in the form of dividents; to draw the attention of the corporation to its overall requirements, to provide additional capital, to help anticipate emergencies, to help in the equalisation of dividend payments and to supplement valuation reserve also.

The reserve surplus of the flour mill had shown variations during 1980-87. It showed increasing trend till 1982, than a declining trend could be seen in the following two years followed by alternative increase and decline in the succeeding years.

Borrowing of capital for long term purposes can be done in various forms such as bank loans, institutional financies, bonds and debentures. The secured and unsecured loans of the flour mill were also shown in table V. Secured loans comprise the debentures, loans from banks, amount due to machinery suppliers, on deferred payment system and from others. Unsecured loans comprise fixed deposites, guarantee deposites and from Life Insurance Corporation of India Limited.

The trend values of Reserved Surplus, secured and unsecured loans were calculated (APPENDIX - V) and shown in the table VI and also in the graph (P.NO;32)

TABLE VI

Trend values of Reserved Surplus Secured and Unsecured Loans

S.No.	Period	Reserved surplus	Secured loans	Unsecured loans
1.	1980	347519.78	1454197.8	794432.83
2.	1981	346274.89	1455015.5	1009941.9
3.	1982	345029.99	1455833.3	1225451.0
4.	1983	343785.1	1456651.0	1440960.1
5.	1984	342539.75	1457468.8	1656469.2
6.	1985	341295.31	1458286.5	1871978.3
7.	1986	340050.41	1459104.3	2087487.4
8.	1987	338805.52	1459922.0	2302996.5

When the trend values were graphed, it could be seen that among reserve surplus, secured and unsecured loans, the former was the highest. After 1984, the industry started getting more of unsecured loans than of secured loans.

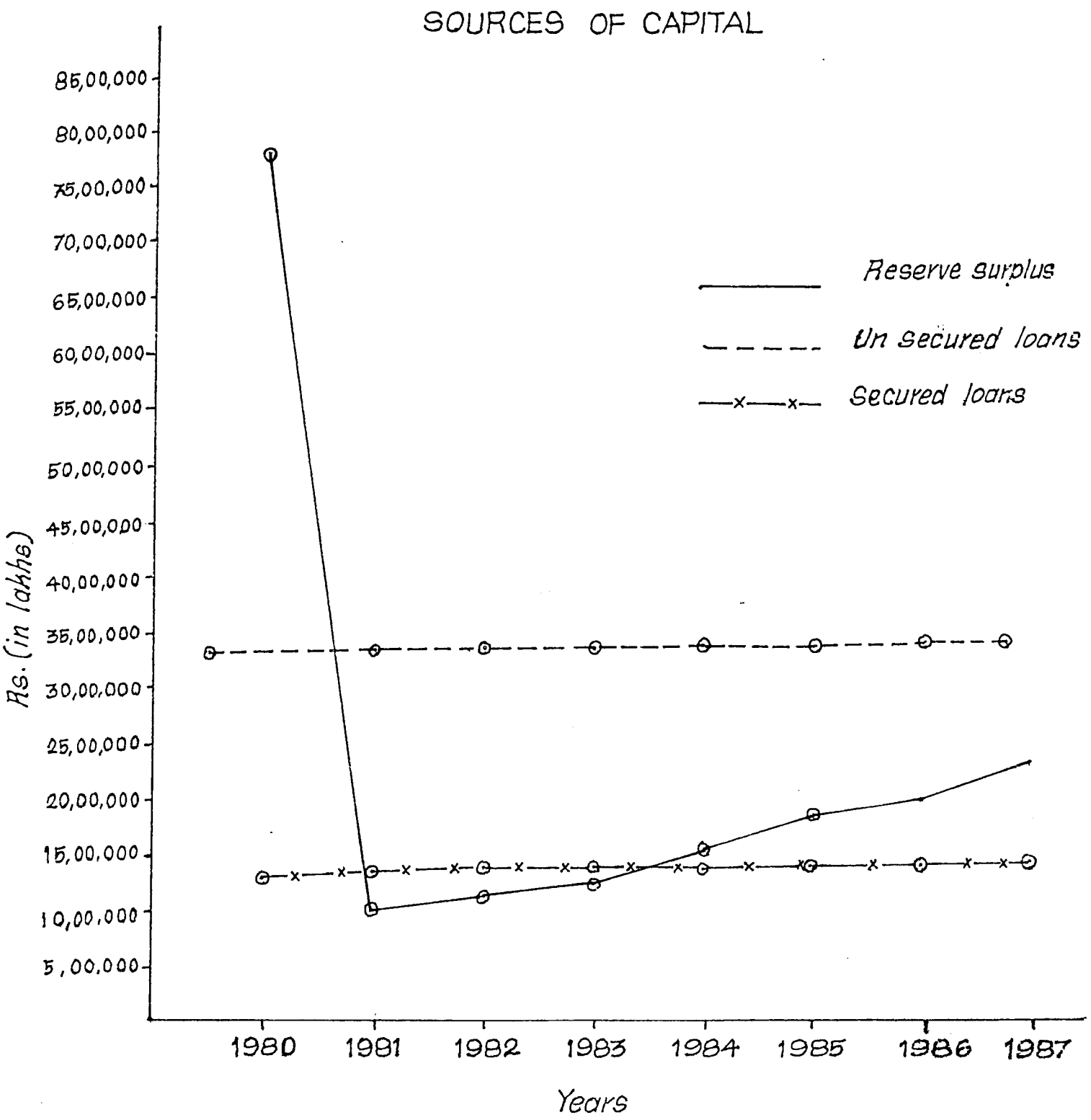
SOURCES OF CAPITAL
85,00,000
80,00,000
75,00,000
70,00,000
65,00,000
60,00,000
55,00,000
50,00,000
45,00,000
40,00,000
35,00,000
30,00,000
25,00,000
20,00,000
15,00,000
10,00,000
5,00,000
Rs. (in lakhs)
Reserve surplus
Un secured loans
Secured loans
1980
1981
1982
1983
1984
1985
1986
1987
Years

Figure : 2.

4.3. Production:

The word production in general means the activity which goes to satisfy the needs of the consumers for goods and services. It is the direct utilisation of the natural resources. A firm's production can take various forms. It can produce only a single commodity or it can have joint production where several products are produced from the production process or it can be multi product production where several goods are supplied at the same time by the firm.

The flour mill under study produced multi products. From wheat, wheat-by-products were produced. The quantity of the various items produced by the firm were given in the following table (VII). (p 35) Of the total by products produced, maida constituted the major item of production followed by Bran, Sooji and Atta.

Trends in Production:

The linear trends estimated for the production give an idea of how production takes place over a period of time. Hence linear trends were fitted for the products Maida, Bran, Sooji and Atta. The estimated production equations were as follows; (p. 36)

Table VII Production (in m. tonnes)

S.No.	Period	Maida	Bran	Sooji	Atta	Wastages
1.	1980	3122.28	846.72	793.80	423.36	105.84
2.	1981	3426.72	929.28	871.20	464.64	116.16
3.	1982	3175.2	1058.4	529.20	423.36	105.84
4.	1983	3935.76	1206.12	634.80	507.84	63.48
5.	1984	4008.96	1313.28	967.68	552.96	69.12
6.	1985	4500.00	1500.00	750.00	600.00	150.00
7.	1986	4867.20	1622.40	811.20	648.96	162.24
8.	1987	4500.00	1500.00	750.00	600.00	150.00

Period 1980 - 87

$QM = 2822.68 + 248.74^{*}t$ (6.08) $\quad R^2 = .86 \quad (1)$

$QS = 742.65 + 4.63^{*}t$ (0.08) $\quad R^2 = .007 \quad (2)$

$QA = 381.21 + 32.54^{*}t$ (6.05) $\quad R^2 = .86 \quad (3)$

$QB = 739.69 + 112.74^{*}t$ (8.9) $\quad R^2 = .93 \quad (4)$

QM = Maida production

QS = Sooji production

QA = Atta production

QB = Bran production

(Figures in the brakets indicate the t values of the parameter estimates

* = significant as 5% level)

Maida, Atta and Bran showed increased production over time, Excepting Sooji, the other by products of wheat showed significant variations overtime. The trend values obtained in the production of these by products of wheat a were given in table VIII.

TABLE VIII

Trend values in production

S.No.	Period	Maida (m.tonnes)	Sooji (m.tonnes)	Atta (m.tonnes)	Bran (m.tonnes)
1.	1980	3071.84	747.28	413.75	852.43
2.	1981	6142.84	1494.56	827.50	1704.86
3.	1982	9214.26	2241.84	1241.25	2557.29
4.	1983	12285.68	2989.12	1655.00	3409.72
5.	1984	15357.10	3736.40	2068.75	4262.15
6.	1985	18428.52	4483.68	2482.50	5114.58
7.	1986	21499.94	5230.96	2896.25	5967.01
8.	1987	24571.36	5978.24	3310.00	6819.44

The trend values in the production of the by products of wheat showed gradual increase over time. The trend values were also graphed in figure (3) (P.No. 37-a).

TRENDS IN PRODUCTION OF THE BY-PRODUCTS OF WHEAT

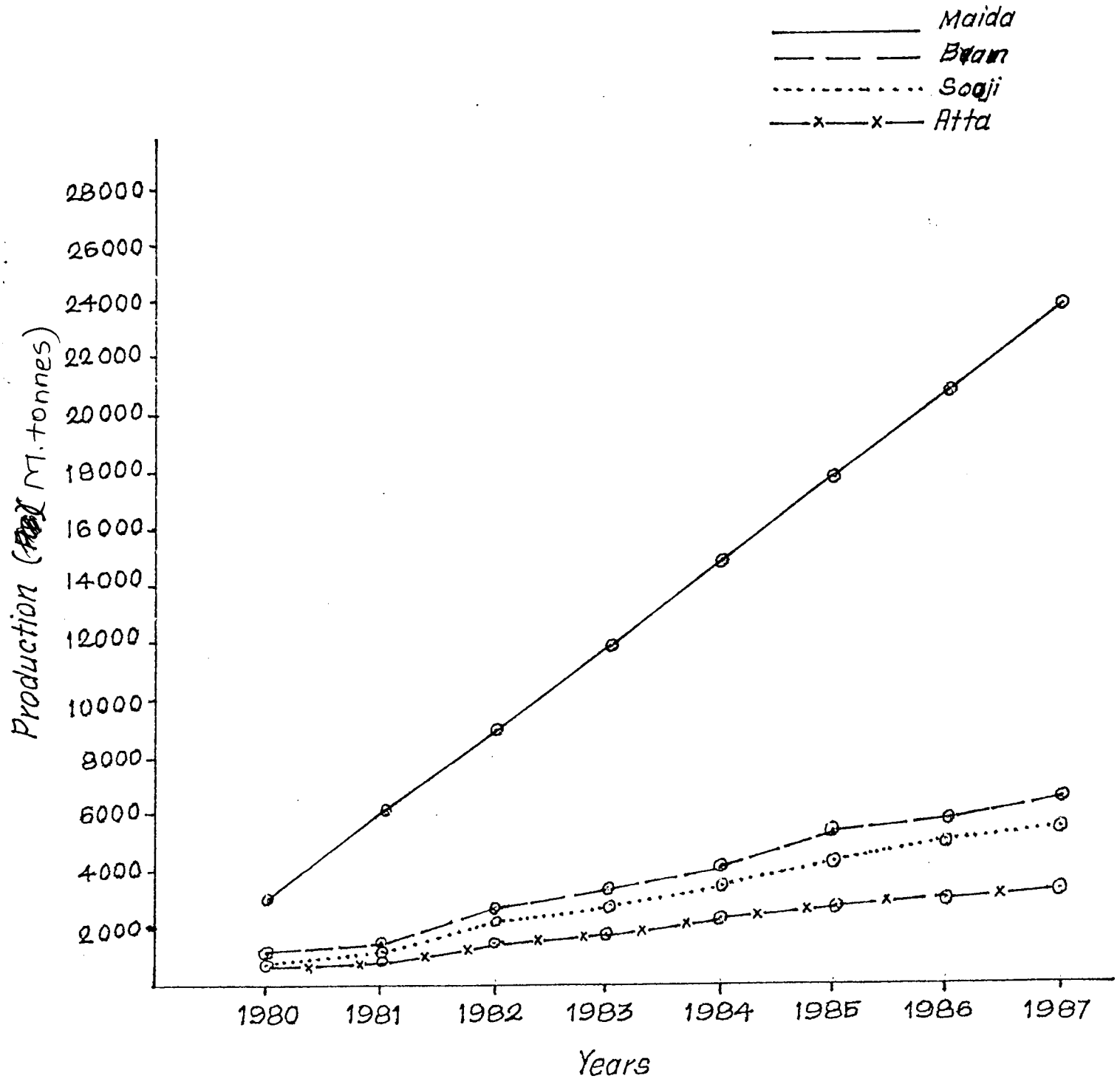

Figure: 3.

The graph revealed the increased production of maida. Of all the by products of wheat, maida occupied a greater proportion. All the by products of wheat showed increase in production over the passage of time.

Wheat flour production:

The total quantity of wheat ground for the reference period under study was given in Table IX

TABLE IX Ground Wheat Flour

S.No.	Period	Ground wheat flour (m.tonnes)
1.	1980	5292
2.	1981	5808
3.	1982	5292
4.	1983	6342
5.	1984	6342
6.	1985	7500
7.	1986	8112
8.	1987	7500

In the years 1982 and 1987, there were decline in the quantity of wheat ground. The quantum of wheat flour produced in any period depended on the procurement of wheat, the number of hours it was ground etc.

To see the growth in the quantity of wheat flour ground by the flour mill under study linear and exponential trends were fitted.

The estimated equations were

			Period Eqn.No.
$Q = 4764.111 + 406.892\ t$ (6.05)	$R^2 = .86$, $n = 8$	.....	(5)
$Q = 4920\ (1.064)^t$	$R^2 = .85$, $n = 8$	.....	(6)

Assuming the output as dependent on the time factor and using regression analysis R^2 was found to be .86 There was increase in the production of wheat flour, ~~is~~ $\hat{b}$ being positive. The growth in the production of wheat flour during the study period was also statistically significant at 5 percent level. Production grew at the rate of 6 percent per annum.

Production function:

Production function gives the technical relationship between inputs and output. Production function is written as,

$$Q = f(x_1, x_2 \ldots\ldots\ldots\ldots x_n) \text{ where } x_1, x_2 \ldots\ldots x_n$$

are the inputs used in the production of Q. It shows how the changes in inputs cause changes in the output level. Often used production function in economics is the Cobb-Douglas production function which is given as

$$Q = AK^{\alpha} L^{\beta} e^{u}$$

Q = output K = capital L = Labour

u = Random term, α and β represent the share of capital and Labour in total output. By the principle of non-wastage,

$$\frac{\delta Q}{\delta K} > 0 \quad \text{and} \quad \frac{\partial Q}{\partial KL} > 0$$

It is meant by this that no entrepreneur deliberately, voluntarily and with full knowledge wastes factors of production. $\alpha, \beta > 1$ imply that the marginal products are increasing. The C.D. production function having Constant elasticities explains its theoretical interest when one is concerned to study variations in output over a limited range.

The investigator tried to find out the nature of the flour mill under study by fitting the Cobb-Douglas production function

$$Q = AK^{\alpha} L^{\beta} e^{u}$$

Q = output K = capital L = Labour

u = Random term for the period 1980-87. The data on production capital and Labour employed in the flour mill for the period 1980-87 were given in the following table VIX. (p 49)

Table X · Wheat flour, capital and Labour

S.No.	Period	Wheat flour production (m. tonnes)	Capital (Rs)	Labour (Number)
1.	1980	5292	10,41,401	19
2.	1981	5808	8,67,445	19
3.	1982	5292	7,76,677	21
4.	1983	6348	8,16,793	21
5.	1984	6912	12,61,301	21
6.	1985	7500	10,79,538	24
7.	1986	8112	10,18,035	36
8.	1987	7500	10,79,558	42

The estimated production function was

$$Q = (37.33)\ K^{.45}\ \ L^{.314}\ \ \ R^2 = .91\ \ \ n = 8$$

Marginal productivity of capital $= \frac{\partial Q}{\partial K}$

$$\frac{\partial Q}{\partial K} = (37.33)\ (.45)\ \frac{L^{.314}}{K^{.55}}$$

Marginal productivity of Labour $= \frac{\partial Q}{\partial K}$

$$\frac{\partial Q}{\partial L} = (37.33)\ (.314)\ \frac{K^{.45}}{L^{.686}}$$

Marginal productivities of both capital and Labour were positive, going with the fact that the entrepreneur avoids wasting factors of production.

The partial elasticity of production with respect to capital $= \frac{\delta Q}{\delta K} \cdot \frac{K}{Q} = .45$

The partial elasticity of production with respect to Labour $= \frac{\delta Q}{\delta L} \cdot \frac{L}{Q} = .314$

The share of capital in production being greater than the share of labour in production implied that the flour mill was a cpital intensive industry.

The flour mill under study was subject to diminishing returns to scale, the sum of partial elasticities of capital and Labour being less than one.

$$\alpha + \beta = .45 + .314$$

$$.764 < 1$$

One factor that could be attributed to the diminishing returns to scale was the difficulty in obtaining the raw materials and the price escalation.

4.4. Cost Analyes;

The efficient operation of any firm depends on whether or not it can keep its cost of production at an efficient minimum level. Many studies have proved that the failure of many small firms were due to the lack of economical size suitable for the particular production process under consideration, It is hence necessary to study cost aspect in detail and to make the specific decisions necessary to effect the desired cost of control. Long seen costs are mostly determined by the basic tech know economic structure and cannot be easily controlled. But short run cost functions are mostly due to financial difficulties and can be easily controlled "if the managerial"decision processes are efficient.

Traditionally it is hold that the volume of production is the most important variable in determining cost. And traditionally it is also held that $C = \alpha_o + \alpha_1 q + \alpha_2 q_2^2$ is the appropriate function for cost.

C = cost of production, q= output.

α_o generally takes positive value. α_1 positive and α_2- Ve imply that cost increases at a decreasing rate and after defining an inflexion point it may increase at an increasing rate.

α_1 Negative value α_2 positive value imply costs initially increase at an increasing rate and latter after the inflexion point increases at a decreasing rate.

The total cost incurred by the mill under study was analysed by discussing the different components of the cost. The various components of the cost discussed are production cost, wages and salaries cost, interest cost, Machinery cost, maintanence cost and advertisement cost.

The data on the above items for 1980-87 were given in the following Table XI. (p.45)

The Above table revealed interesting facts of the total cost incurred by the firm. Interest cost was the highest followed by Machinery cost, wage cost, maintanence cost, Advertising cost, and production cost. The proportion of each cost to total cost given in the above parantheses indicate the greatest amount of cost incurred on interest. The proportion of interest cost was very high in 1985, and least in 1984. The proportion of interest cost varied between 42.18 and 58.77. The next important component in the cost item was machinery cost. The proportion of Machinery cost was high in 1980. It's range was between 14.05 and 35.66. It was but natural that in the flour mills, the cost incurred on Machinery was high.

TABLE XII

COST COMPONENTS

S.No.	Period	Production Cost (Rs)	Interest Cost (Rs)	Machinery Cost (Rs)	Maintanence Cost (Rs)	Wages & Salaries Cost (Rs)	Advertisement Cost (Rs)	Total (Rs)
*1	1980	13,875 (1.99)	3,05,000 (43.66)	2,14,818 (30.75)	48,852.10 (6.99)	84,709.10 (12.13)	31.250 (4.47)	698504.2
2.	1981	11,807.47 (2.09)	3,03,640.44 (53.71)	79,760.36 (14.05)	49,760.36 (8.80)	98,646.36 (17.45)	22,070 (3.90)	565373.4
3.	1982	17,271 (3.02)	3,02,240.24 (52.81)	1,20.258.45 (21.01)	55,380.81 (9.68)	56,753.00 (9.92)	20,380 (3.56)	572283.5
4.	1983	26,583 (4.19)	2,08,765.54 (48.63)	1,55,714.55 (24.52)	62,562.70 (9.85)	62.562.70 (9.85)	18.750 (2.95)	634938.49
5.	1984	18,138 (2.42)	3,15,709.50 (42.18)	2,66,919.00 (35.66)	57.547.00 (7.69)	47,959.00 (6.41)	42,241 (5.64)	748513.5
6.	1985	12,207.68 (2.13)	3,13,660.44 (54.77)	97,557.66 (17.04)	56,450.26 (9.86)	53.775.00 (9.39)	39,029.25 (6.82)	572680.29
7.	1986	14,080.50 (2.25)	3,08,776.11 (49.46)	1,39,134.37 (22.21)	64,356.00 (10.27)	59.975.00 (9.58)	39,029.25 (6.23)	626351.23
8.	1987	12.207.68 (1.99)	3,13,660.64 (51.68)	97,557.60 (15.95)	56,450.25 (9.23)	1,10,225.26 (18.02)	21,509.05 (3.52)	611610.48

(Figures in the paran^theses indicate the proportion of the cost to Total cost.)

In the firms where machineries are important in production process, the problem of maintaining the machineries also arises. It leads to an increase towards maintainenance cost. About 10 percent of the total cost was allotted towards maintanence, production cost included only about 3 percent of the total cost. The next important item was the wage cost. The proportion of wage cost to total cost varied between 6.41 and 18.02. The number of labourers employed in the mill being a small number the cost towards wages also was less.

The discussion clearly showed that interest cost, and maintenance cost were the most important components of the cost items in the flourmill.

To see how, the various components of the cost changed over time the percentage variations in the cost over the previous year were calculated and shown in the following table XII (p 47)

For every two years Interest cost showed decline followed by an increase inevery two years. There was systematic variation in interest cost than costs on other components. With increase in machinery cost, total cost also increased.

When ever there was deceleration in machinery cost, total cost also showed declining trend. The cost towards advertise ment was decreasing over the period of study. In recent years the cost towards wages and salaries showed an increasing trend and it came second to machinery cost.

Table IX1 Percentage variations in cost

S.No.	Period	Interest cost	Machinery cost	Maintenance cost	Production cost	Wages & Salaries cost	Advertise-ment cost	Total cost
1.	1980	-	-	-	-	-	-	-
2.	1981	- .44	- 170.38	1.83	-17.5	14.13	- 41.59	-23.55
3.	1982	- .46	33.93	10.83	31.6	- 73.82	- 8.29	1.207
4.	1983	2.1	27.77	11.48	35.03	9.29	- 8.69	9.87
5.	1984	.02	41.66	-8.72	- 46.56	- 30.45	55.61	15.17
6.	1985	- .65	-173.16	-1.94	- 48.58	10.82	- 8.23	-30.70
7.	1986	- 1.25	29.88	12.28	13.3	10.34	0	8.57
8.	1987	1.23	-42.62	- 14	- 15.34	45.59	- 81.46	-2.41

Cost and output:

Cost and output are related. With increased output, cost also tend to increase. It is the concern of each firm to reduce the cost and obtain maximum output. The relation between cost and output was analysed by fitting linear and log linear cost functions.

linear : $C = a + bq$

log linear: $\log C = \text{Log } a + b \log q$

C = cost, q = output, A high R^2 implies that the firm is subject to constant returns to scale, other wise not. The positive sign of b implies the increased cost with increased production. Traditionally, a & B take positive signs. Cost functions of the above type were fitted for the different components of cost. Only interest cost and maintenance costs varied directly with the output. The other cost components had insignificant variations with the output level.

Period
1980 - '87

$$Ma.C = 34160.123 + \underset{(2.2)}{3.375^{*}}\,Q \qquad R^2 = .45$$

$$In.C. = 284725.81 + \underset{(3.12)}{3.689^{*}}\,Q \qquad R^2 = .62.$$

Ma.C = Maintenance cost , In.C. = Interest cost

* Parameter estimate statistically significant at 5% level

With increased output level, both maintenance and interest costs increased. For a unit change in output both the costs. Changed by about 3.5 units. When the output level was zero, the parametre estimate of $\hat{\alpha}$ was +ve implying the fixed

cost to be incurred by the mill. These two cost functions thus were in accordance with the traditional economic theories.

To find out the level of output at which investment cost was minimum,

$In.C = \beta_o + \beta_1 Q + \beta_2 Q_2$ was estimated and the estimated equation was

Period 1980-'87

$$In.C = -1400160 + \underset{(3.35)}{577.54*Q} - \underset{(3.07)}{.04*Q^2} \qquad R^2 = .688$$

(* parameter estimates statistically significant at 5% level)

When the first and second order conditions for minimum was applied using differentiation, the obtained result was that interest cost was minimum when the output level was 7219.25 m.tonnes.

When a quadratic maintenance cost function was fitted, the obtained equation was

Period 1980-'87

$$Ma.C = \underset{(.17)}{34840.841} + 3.4Q - \underset{(.0013)}{.0000019Q^2} \qquad R^2 = .45$$

The maintenance cost was minimum when the output level was 8947.3684.

4.5. Profit:

Any firm to run its operation seeks that is earns maximum profit subject to the limitations it had to face in terms of the availability of inputs, marketing, etc., Profit is an indicator of the efficient operation of the firm in the long run.

The importance given to profit planning in business finance reflects its genuine importance in the financial activities of a modern business.

Hence a study on profit, and its growth rate were analysed. The minimisation of profit with in a socially acceptable limit implies that a proper regard to public interest has been paid.

The profits earned by the flour mill was given in the following table XIII. (P 50)

Profit showed gradual increase from 1980 to 1984. Then there was a decline in profit from Rs. 1,63,100 in 1984 to 1,62,050 in 1985 and to Rs. 1,23,750 in 1986. Then it showed an increase in 1987 to 1,57,000.

During the period 1980-88 profit ecceeded the mean profit in 4 years and was less than the mean value in 4 years. There was much variation in the amount of profit earned by the firm the coefficient of variation being 14.5.

Table XIII Profit

S.No.	Period	Profit
1.	1980	1,05,550
2.	1981	1,22,750
3.	1982	1,37,780
4.	1983	1,57,250
5.	1984	1,63,100
6.	1985	1,62,050
7.	1986	1,23,750
8.	1987	1,57,000
Mean		141153.75
		20460.577
C.V.		14.50

A study on the growth of profits is important in the sense that it also enables the firm to decide the dividents it has to pay to its share holders. The growth of profit was estimated by fitting the exponential function.

$$\overline{II} = ab^t$$

$\overline{II}$ = Profit ; t = time. The estimated exponential function was,

$$\overline{II} = (117000)\ (1.040)^t$$

Profit grew at the rate of 4% per annum.

4.6 Problems

The problems faced by the mill under study were listed as follows.

1. Financial assistance: In recent years, the mill had started getting financial assistance from the banks. But the amount being inadequate, it had to borrow from other sources.
2. Electricity failure: The mill being capital intensive, failure of electricity hit the smooth running of the mill.
3. Marketing was one of the problem faced by the mill.

4.7 Marketing:

The finished products of the mill were sold within and outside the state Marketing of the products were being done through canvassing agents. In marketing, it faced the problem of supplying the required type of wheat flour as quality tastes differed. To boost sales and strenthen marketing, the mill resorted to advertising and provided incentives.

Summery and Conclusion

SUMMARY, SUGGESTIONS AND CONCLUSION

Roller Flour Milling included in the list of small scale industries is one of the odlest and largest agro based food processing industries of the economy. This industry being a link in the chain of supply of food based on the wheat products, it should have a smooth running in its operation. For this, the uninterupted supply of raw materials namely wheat is essential. The government has taken proper measures to supply adequate stock of wheat to these industries. This study tried to analyse the working of a selected flour mill in Coimbatore District with reference to selected economic variables. Various studies had already been made on the working of flour mills in India and abroad. The findings of the study revealed, the various problems based by the industry, and these studies also had given suggestions for the better working of the industry. The major problems faced by the industry are

1) Inadequate finance and
2) Inadequate supply of raw materials

The investigator tried to study the working of a flour mill in Coimbatore District with the following objectives.

1. To study the capital structure of the selected mill.
2. To analyse the trends in production, cost and profit of the selected Roller Flour mill and,
3. To study the problems faced by the mill.

The investigator had chosen "APEX ROLLER FLOUR MILLS (P) Ltd." because of the willingness of the management to provide with adequate data. Besides, it in one of the leading industry in Coimbatore. Since, the data where available only for the period 1980-87, this period was taken for the study. The required data were collected through primary and secondary sources. Balance sheets of the industry were used in getting the data. Besides, A personal interview schedule was also administered. To analyse the data mathematical, statistical and econometric tools were applied. The results of the findings were summarized below.

Summary:

1) Capital structure:

1) Capital structure of the industry was analysed by considering fixed and working capital. Working capital which was used to carry out day-to-day operations contributed more to productive capital than fixed capital. On an average about 70 percentage of the productive capital comprised of working capital.

2) Working capital showed greater co-efficient of variation than fixed capital (P.No.27).

3) The sources of capital in this industry consisted equity capital, reserve capital, secured and unsecured loans. Equity capital was the major source of capital followed by Reserve surplus unsecured and secured loans.

4) Production:

The Flour mill under study produced multi products. The products produced were maida, Bran, Sooji, and Atta.

5) The estimated production equations of the above items were, Period 1980-'87

$QM = 2822.68 + 248.74 *t$ (6.08) $R^2 = .86$ ..... (1)

$QS = 742.65 + 4.63 t$ (.08) $R^2 = .007$ ..... (2)

$QA = 381.21 + 32.54*t$ (6.05) $R^2 = .86$ ..... (3)

$QB = 739.69 + 112.74*t$ (8.9) $R^2 = .93$ ..... (4)

Excepting sooji the other byproducts of wheat showed significant variations over time.

6. Trend values in the production of the by-products of wheat showed gradual increase over time.

7. Of all the by products of wheat, maida occupied a greater proportion (P.No 35).

8. The estimated equations of wheat flour products were,

$Q = 4764.111 + 406.892 t$ (6.05) $R^2 = .86$, $n = 8$ ..... (5)

$Q = 4920 (1.064)^t$ $R^2 = .85$, $n = 8$ ..... (6)

9. Wheat flour production had a growth rate of 6 percent per annum.

10. The Cobb-Douglas production function estimated was

$Q = (37.33)K^{.45} \quad L^{.314} \quad R^2 = .91 \quad n = 8.$

The estimated function implied that the industry was under diminshing returns to scale and it was capital intensive. The industry did not waste the materials ~~cost~~ in the production process.

11. The various components of cost discussed in the analysis were production, interest, machinery, Machineries, wages & salaries and advertisement.

12. The proportion of interest cost was high. It varied between42.18 and 58.77 (P.NO. 44).

13. The next important component in the cost item was machinery cost followed by other items.

14. A decline in machinery cost was followed by a decline in total cost.

15. Only interest cost and maintenance cost varied directly with output.

The estimated equations were Period 1980-'87

$$Ma.C = 34160.123 + \underset{(2.2)}{3.375}Q \qquad R^2 = .45$$

$$In.C = 284725.81 + \underset{(3.12)}{3.689}Q \qquad R^2 = .62$$

16. The Quadretic equations for interest and maintanence costs were

$$\text{In } C = -1400160 + 570.54Q - .04\ Q^2 \qquad R^2 = .69$$

$$= \qquad\qquad (3.35) \quad (3.07)$$

$$Ma.C = 34840.84\ 1 + 3.4Q - .0000019Q^2 \qquad R^2 = .45$$

$$(.17) \quad (.0013)$$

The optimum levels of output for interest and maintanence costs to be minimum were 7219.25m.tonnes and 8947.3684m.tonnes respy.

17. With increased output, profits also increased. profit had a growth rate of 4 percent per annum.

Problems:

18. The Industry under study was in need of financial assistance from the banks.

19. Failure of electricity, marketing were the other problems faced by the Industry.

Marketing:

20. The finished products of the mill were sold with in and outside the state.

21. To the streng then sales and marketing the mill advertised its products.

Suggestion:

22. For the efficient operation of the flour mill the Government should see that adequate financial assistance and raw materials are being provided to the industry.

Conclusion:

23. The marginal productivities of both capital and labour were positive suggesting that the enterpreneurs avoided wasting factors of production (P.40) Inspite of this, the industry was subject to diminishing returns to scale. But the production of maida - a by product of wheat showed a greater acceleration indicating the increased demand for the same. Hence, by suitably adjusting the production pattern in accorandance with the needs of the economy, the industry can have a higher progress.

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Appendix

APPENDIX I

Number of Mills, their Monthly Capacities

State-wise as on 31.3.87.

Name of the State/ Union territorities.	No.of Mills	Monthly Capacity Metric tonnes.
Andhra Pradesh	55	52495
Assam	22	44600
Bihar	34	55934
Chandigarh	2	3151
Delhi	13	39609
Goa	1	2250
Gujarat	27	26116
Haryana	13	26481
Himachal Pradesh	4	5715
Jammu & Kashmir	17	25350
Karnataka	48	52274
Kerala	12	14520
Madhya Pradesh	10	14474
Maharashtra	43	76599.
Nagaland	2	3250
Orissa	18	31400
Pondicherry	2	1500
Punjab	22	40452
Rajasthan	9	11505

Sikkim	1	720
Tamil Nadu	41	81616
Tripura	2	3250
Uttarpradesh	61	124516
West Bengal	37	86153
	496 Mills	823960 m.tonnes

APPENDIX II

(i) Statistics on Production, Procurement and Stock Position of Wheat.

(Crop Year 1st July to end June)

	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Production (in Million tonnes)	31.83	36.31	37.45	42.79	45.48	44.07	47.05	45.57	46.5 to 47.0
(II) Procurement (in Lakh tonnes wheat)	80.00	58.60	65.95	77.18	82.92	93.00	103.07	78.80	65.00

(III)

Year	As on	Stock (in Lakh tonnes)
1978	1.7.78	122.29
1979	1.7.79	117.28
1980	1.7.80	90.03
1981	1.7.81	77.33
1982	1.7.82	101.81
1983	1.7.83	130.13
1984	1.7.84	178.13
1985	1.7.85	207.39
1986P	1.7.86	188.51
1987P	1.7.87	149.26
1988P	1.3.88	46.69
1988P	1.4.88	33.41

(P) Provisional.

APPENDIX III

International School of Milling Technology (ISMT)

Regular Course				Short Course	
Year	Indian	Foreign	Total No.	Year	No
1981 - 82	12	-	12	April 1981	8
1982 - 83	13	1	14	August 1983	21
1983 - 84	14	4	18	September 1984	18
				September 1985	17
				April 1986	16
1984 - 85	17	2	19	September 1986	28
1985 - 86	16	4	20	June 1987	23
1986 - 87	16	3	19	July 1987	25
1987 - 88	13	5	18	March 1988	18
	101	19	120		174

Questionaire:

IV. A Personal interview schedule to elicate information on the economic aspects of a selected flour mill in Coimbatore District.

A. 1. Name of the Interviewer ;

2. Name of the Interviewee :

3. Address :

4. Date of Interview :

B. Back Ground Details

5. Year of Establishment :

6. Type of Ownership :

C. 7. What are the items being ground in the Mill?

8. Purchase of Raw Materials:

Methods of purchasing the items to be ground.

Items	METHOD				
	Wholesale	Retail	Mode of Purchase Cash.	Credit	Others Specify

9. Frequency of purchasing the items.

Governing Factors;

10. Total quantity purchased in a year.

11. How do you purchase wheat ?

12. Problems faced in purchasing wheat.

13. Mention the remedies you can suggest to overcome the problems.

14. Production.

S.No.	Period	Production	Capital Employed	No. of Labourers.

---

15. Capital:

S.No.	Period	Fixed Capital (Rs)	Working Capital (Rs)

16. Production (M.tonnes)

S.No.	Period	Maida	Sooji	ATTA	BRAN	Wastages

17. What are the problems you faced is end production ?

SALES:

18. To whom do you sell ?

19. Measures taken to boost salers.

20. Marketing:
How do you Market the products ?

21. Problems faced in marketing.

Suggestion if any:

V. Capital structure

S.No.	Period	F.C.	W.C.	Equity shares	Reserve surplus Y1	Secured loands Y2	Unsecured loans Y2	Time
1.	1980	10,41,401	17,44,809.25	30,00,000	34751.78	1454197.8	794432.83	1
2.	1981	8,67,445	27,35,669.49	30,00,000	346274.89	1455015.5	1009941.9	2
3.	1982	7,76,677	32,50,464.65	30,00,000	345029.99	1455833.3	122545.0	3
4.	1983	8,16,793	15,35,880.75	30,00,000	343785.10	1456651.0	1440960.1	4
5.	1984	12,61,301	15,20,321.00	30,00,000	342539.75	1457468.8	1656469.2	5
6.	1985	10,79,538	36,08,727.97	30,00,000	341295.31	1458286.5	1871978.3	6
7.	1986	10,18,035	69,18,389.41	30,00,000	340050.41	1459104.3	2087487.4	7
8.	1987	10,79,558	34,88,897.42	30,00,000	338805.52	1459922.0	2302996.5	8

$(y_1-\bar{y}_1)^2$ = 6,50,00,00

$(y_2-\bar{y}_2)^2$ = 1.08

$(y_3-\bar{y})^2$ = 19506(10)^8

$(T-\bar{T})^2$ = 42

y_1t = -52273

y_2t = 34345.6

y_3t = 9051382

$\bar{y}_1$ = 343162.59

$\bar{y}_2$ = 1457059.9

$\bar{y}_3$ = 1548714.7

$\bar{T}$ = 4.5

VI Production (in m.tonnes)

S.No.	Year	Maida Qm	Sooji Qs	Atta QA	Bran QB	Wastage	Wheat flour	Time
1.	1980	3071.42	747.28	413.75	857.43	105.84	5292	1
2.	1981	6142.84	1494.56	827.50	1704.86	116.16	5808	2
3.	1982	9214.26	2241.84	1241.255	2557.29	105.84	5292	3
4.	1983	12285.68	2989.12	1655.00	3409.72	63.48	6348	4
5.	1984	15357.1	3736.4	2068.75	4262.15	69.12	6912	5
6.	1985	18428.52	4483.68	2482.5	5114.58	150.00	7500	6
7.	1986	21499.94	5230.96	2896.25	5967.01	162.24	8112	7
8.	1987	24571.39	5978.24	3310.00	6819.44	150.00	7500	8

$(QM - \bar{Q}M)^2 = 39622(10)^4$ $\quad \bar{Q}M = 13821.394$

$(QS - \bar{Q}S)^2 = 23453762$ $\quad \bar{Q}S = 3362.76$

$(QA - \bar{Q}A)^2 = 7189941$ $\quad \bar{Q}A = 1861.875$

$(QB - \bar{Q}B)^2 = 30366000$ $\quad \bar{Q}B = 3836.56$

$(QT - \bar{Q}T)^2 = 42$ $\quad \bar{T} = 4.5$

$Q_m t = 128999.74$

$Q_s t = 31385.76$

$Q_a t = 17377.5$

$Q_b t = 35784.56$

VII Cobb-Doughlas production function

S.No.	Period	Production (m.tonnes)	Capital (Rs)	Labour (Number)	Time
1.	1980	5292	10,41,401	19	1
2.	1981	5808	8,67,445	19	2
3.	1982	5292	7,76,677	21	3
4.	1983	6348	8,16,793	21	4
5.	1984	6912	12,61,301	21	5
6.	1985	7500	10,79,538	24	6
7.	1986	8112	10,18,035	36	7
8.	1987	7500	10,79,558	42	8

$$Q = AK \quad L \quad e^{u}$$

$$Q = (37.33)K^{.45} \; L^{.314}$$

VIII Cost components

S.No.	Year	Production y cost (Rs)	Interest y_1 cost (Rs)	Machinery y_2 cost (Rs)	Maintenance y_3 cost (Rs)	Wages & Salaries y_4 cost (Rs)	Advertisement cost y_5 (Rs)	Total cost y_6
1.	1980	13,875.00	3,05,000.00	2,14,818.00	48,852.10	84,709.10	31.250	698504.2
2.	1981	11,807.47	3,03,640.44	7,79,448.77	49.760.36	98,646.36	22,070	565373.4
3.	1982	17,271.00	3,02,240.24	1,20,258.45	55,380.81	56,753.00	20,380	572283.5
4.	1983	26,583.00	3,08,765.54	1,55,714.55	62,562.70	62,562.70	18,750	634938.49
5.	1984	18,138.00	3,15,709.50	2,66,919.00	57,547.00	47,959.00	42,241	748513.50
6.	1985	12,207.68	3,13,660.44	97,557.66	56,450.26	53,775.00	39,029.25	572680.29
7.	1986	14,080.50	3,09,776.11	1,39,134.37	64,356.00	59,975.00	39,029.25	626351.23
8.	1987	12,207.68	3,13,660.64	97,557.60	56,450.25	1,10,225.26	21,509.05	611610.48

$(y-\bar{y})^2 = 172301\ (10)^3$

$(y_1-\bar{y}_1)^2 = 179094(10)^3$

$(y_2-\bar{y}_2)^2 = 292822(10)^5$

$(y_3-\bar{y}_3)^2 = 204627(10)^3$

$(y_4-\bar{y}_4)^2 = 370867(10)^4$

$(y_5-\bar{y}_5)^2 = 664426(10)^3$

$(Q-\bar{Q})^2 = 35612(10)^4$

$(y-\bar{y})(Q-\bar{Q}) = -7299398.3$

$(y_1-\bar{y}_1)(Q-\bar{Q}) = 29937030$

$\bar{y} = 15771.291$

$\bar{y}_1 = 309056.61$

$\bar{y}_2 = 146426.05$

$\bar{y}_3 = 56419.935$

$\bar{y}_4 = 71825.678$

$\bar{y}_5 = 29282.319$

$\bar{Q} = 6595.5$

$(y_2-\bar{y}_2)(Q-\bar{Q}) = -65924102$

$(y-\bar{y}_6)^2 = 298867(10)^5$

$\bar{y}_6 = 628781.88$

$(y_6-\bar{y}_6)(Q-\bar{Q})^2 = -947110$

$(y_3-\bar{y}_3)(Q-\bar{Q}) = 27389861$

$(y_4-\bar{y}_4)(Q-\bar{Q}) = -23100073$

$(y_5-\bar{y}_5)(Q-\bar{Q}) = 37987721$

IX Quadratic function of Maintenance and Interest cost

S.No.	Period	Maintenance cost (Rs) y	Interest cost (Rs) y_1	Output Q (m.tonnes)	(Output)^2 Q^2
1.	1980	48,852.10	3,05,000.00	5292	28005264
2.	1981	49,760.36	3,03,640.44	5808	33732864
3.	1982	55,380.81	3,02,240.24	5292	28005264
4.	1983	62,562.70	3,08,765.54	6348	40220964
5.	1984	57,547.00	3,15,709.50	6912	47775744
6.	1985	56,450.26	3,13,660.44	7500	56250000
7.	1986	64,356.00	3,09,776.11	8112	65804544
8.	1987	56,450.25	3,13,660.64	7500	56250000

$(y - \bar{y})^2 = 204627(10)^3$ $\quad \bar{y} = 56419.935$

$(y_1-\bar{y}_1)^2 = 179094(10)^3$ $\quad \bar{y}_1 = 309056.61$

$(Q-\bar{Q})^2 = 8115038$ $\quad \bar{Q} = .6595.5$

$(Q^2-\bar{Q}^2)^2 = 141912(10)^{10}$ $\quad \bar{Q}_2 = 44505581$

$(y -\bar{y})(Q-\bar{Q})^2 = 27389861$

$(y-\bar{y})(Q-\bar{Q})^2 = 3608(10)^7$

$(Q-\bar{Q})(Q_2-\bar{Q}_2) = 21502(10)^7$

$(y_1-\bar{y}_1)(Q-\bar{Q}) = 30000000$

$(y_1-\bar{y}_1)(Q_2-\bar{Q}_2) = 385(10)^9$

X Profit:

S.No.	Period	Profit	Time
1.	1980	1,05,550	1
2.	1981	1,22,750	2
3.	1982	1,37,780	3
4.	1983	1,57,250	4
5.	1984	1,63,100	5
6.	1985	1,62,050	6
7.	1986	1,23,750	7
8.	1987	1,57,000	8

$(y - \bar{y})^2 = .0362637$ $\bar{y} = 5.1448$

$(T - \bar{T})^2 = 42$ $\bar{T} = 4.5$

$yt = 0.7269$