INTRODUCTION

1.1 IMPORTANCE OF THE STUDY:

Productivity enters, in one way or other, virtually every broad economic problem; it affects costs, prices, profits, output, employment and investment and thus assumes a crucial role in economic development. Productivity indices have been accepted not only as a measure of performance but also as important means of motivating improvements in productive efficiency. Their use in the analysis of the factors that promote productivity and the dynamic economic relationships as a basis for forecasting trends and making policy decisions, are well recognised and being increasingly used at the level of firm, the industry and the economy. In order to monitor the progress of an industry or an enterprise, it is essential to make scientific appraisal of the trends in productivity.

Measuring production and identifying the sources of growth in terms of production function is a fascinating and rewarding area of study. The aggregate production function is implied to represent input-output relation to an individual industry or even in the economy as a whole. Economists think of productivity in terms of production functions that specify the possibilities for making substitution between capital and labour or in other words, a tool which helps in arriving at decisions relating to the choice of techniques of production.
In recent times, an increasing number of interesting studies has been undertaken which examine the relative contribution of labour, capital and technical change in Indian Sugar industry based on both cross-section and time series data. Though there are a large number of studies at macro level in India, studies at micro level are scanty. Further, in recent years studies on production function in India indicate the need for detailed studies and comparisons at the regional level; but only very few comparisons of this kind have been made.

A study of growth, measurement of productivity and estimation of production function in sugar industry is desirable because it occupies a unique place in the industrial structure of India, being the second largest industry, only next to cotton textiles. It is one of the largest and traditional industries in India with a weight of 4.059 per cent in general index of industrial production and nearly 14 per cent in its consumer non-durable goods segment and it is likely that its share will increase in the future.

Sugar industry is subject to substantial regional variations with regard to installed capacity, quantity of cane crushed, duration of crushing season, average recovery, sugar production and productivity. Hence a study on sugar industry in India with special reference to growth, technology and productivity is
warranted. A study at regional level is also desirable as it brings out more facts about functioning, technical change, growth and relative performance of the industry.

1.2 SCOPE OF THE STUDY

Considering the importance of sugar industry, this study is focussed to analyse the pattern and growth of sugar industry in All India and six selected regions viz. Andhra Pradesh, Bihar, Karnataka, Maharashtra, Tamil Nadu and Uttar Pradesh (All these regions together contribute 86 per cent of sugar production in India) taking into account input, output and other related variables. The regions are ranked with regard to various aspects of sugar industry on the basis of annual growth rates. In the present study an attempt has been made to estimate the relative efficiency of different inputs by using partial factor productivity of labour, capital and raw material as well as total factor productivity for the sugar industry in All India and six selected regions for the period from 1973-74 to 1990-91. On the basis of growth of partial and total factor productivity indices, the relative efficiency ranking of the regions are being made. Further an attempt has been made to estimate the influence of output and technology on factor productivities with the help of multiple regression framework. The study also aims to examine and analyse production function in sugar industry in All India and six selected regions during 1973-74 to 1990-91. It includes the estimation of partial elasticities of output with respect to
labour and capital, returns to scale, technological progress and the sources of output growth at the regional as well as national levels. Further, an attempt has been made to measure the regional efficiency in terms of Cobb-Douglas production function by introducing state dummy variables.

1.3 OBJECTIVES

The main objectives of the study are:

a) To characterize the trends in output, inputs and other related variables in sugar industry in All India and selected regions in order to bring out growth in this industry.

b) To measure the regional efficiency in sugar industry using partial and total factor productivity indices,

c) To find out a suitable model for production function in sugar industry among VES, CES and Cobb-Douglas production functions,

d) To estimate the returns to scale and technological progress in sugar industry using Cobb-Douglas production function,

e) To measure the regional variations in the marginal productivity of labour and capital,
f) To examine the relative contributions of labour and Capital in output growth in the selected regions and ALL India, and

g) To apply the Cobb-Douglas production function with state dummy variables to examine the regional efficiency.

I.4 PLAN OF THESIS

The thesis is organised as follows:

Following the introductory chapter, chapter II presents a brief review of literature on the studies of productivity and production function. The first section of this chapter mainly accounts for studies on productivity and second section provides studies on production function. A summary review of studies on productivity and production function is given at the end of the respective sections. In chapter III theoretical aspects of partial productivity and total factor productivity and different types of production function (Cobb- Douglas, CES and VES) and methods for the analysis of the present study are presented. Chapter IV deals with the source of data, definitions and measurement of variables. A review of 'Indian Sugar Industry' in relation to its historical retrospects, importance, growth of sugar industry during plan periods, supply and demand position and the general features of
the industry during 1973-74 to 1992-93 are presented in chapter V. Chapter VI deals with measurement of partial and total factor productivity indices. Ranking of the regions with regard to labour productivity, capital productivity and total factor productivity are made on the basis of the growth rates. In this chapter an attempt is also made to explain the influence of output and technology on factor productivities with the help of regression functions. Chapter VII and VIII are devoted to determine the relevant form of production function for the sugar industry and on the basis of which, partial elasticities of output with respect to capital and labour, returns to scale, neutral technical progress, marginal productivity of labour and capital and sources of output growth are determined. Ranking of the regions and stability of the regions with regard to efficiency are presented in these chapters. Chapter IX contains a summary of the findings and some concluding remarks.
FOOTNOTES