

# Role of Mathematical Programming to Rural Economy Development

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**ABSTRACT:** Maharashtra is one of the important center of sugarcane production and sugar also. Major sugar industries in Maharashtra are located at various places, but western Maharashtra is a major area of sugarcane and sugar industry. Sugar industry in Maharashtra has developed under co-operative movement. Rural Development is an improvement in the economic and social well-being of a specific group of people i.e. the rural poor and agriculture. Any rational scheme of economic development aiming at improving the living standards of people, agriculture development should be the starting point. The concept of Rural Development and mathematical modeling has become a very popular term among planners and policy makers.

**KEYWORDS:** Economy, sugar industry, Mathematical programming, Agriculture.

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## I. INTRODUCTION

Sugar Industry in India is well maintained and is growing at a steady pace, boasting of a consumer base of over billions of people. India is the second largest producer of sugar over the globe. The Maharashtra sugar industry has been contributing nearly 40% of India's full sugar production. But the state is hopeful of translation a aid hand to those who need special guidance on it. With innovatory technologies being fulfill in the Maharashtra compliment trade, the potential can be fully clear. The Maharashtra Sugar Industry has accomplished a showy growth owing to the different conducive in the height. The Sugar industry in Maharashtra is very popular in the coactive sector, as farmers own a portion in the compliment factories. One of the chief crops in Maharashtra is sugarcane, with a landlord of sugar industries been set up over the years. Till now, the universal of futures trading has not been made clear to the rural mass of the Maharashtra compliment trade. The cooperative sugar-coat labor in Maharashtra has skilled the growth its heights with tomorrow venal being instrument in sugar manufacturing.

### Objectives:

The objectives of the Study:

- (1) To study the capital of Sugar cane cultivation, harvest and logistic to factories of the agriculturists
- (2) To study the capital of the agriculturists' pattern for sugar cane cultivation
- (3) To study the obstacles, problems and the solving guideline of agriculturists for Sugar cane cultivation, harvest and logistic.

### SOURCE OF DATA:

The study is mainly based on primary as well as secondary data through observations, survey, various journals, magazines, Books and Newspaper etc.

## II. SIGNIFICANCE OF THE STUDY

Mathematical Programming is the application of scientific methods techniques and tools to problems involving the operations of systems, so as to provide those in control of operations with optimum solutions to the problems.

### THE CONCEPT OF MATHEMATICAL PROGRAMMING

Mathematical Programming is the of modern science on complex problems arising in the direction and management of large systems of men, machines, materials and money in industry, business, government and defence. The distinctive approach is to develop the scientific model of system incorporating measurement of factors such as chance and risk, with which to predict and compare the outcomes of alternative decisions, strategies or controls. The purpose is to help management determine its policies and actions scientifically. The important characters of Mathematical Programming are –Mathematical Programming has a team approach. Mathematical Programming is carried out by team of scientists drawn from different scientific and engineering

disciplines. Mathematical Programming follows scientific approach to solve the problems. it uses scientific methods, techniques and tools to analyze execute type of problem. Mathematical Programming attempts to find optimal solution to problems. Mathematical Programming depends largely on mathematical models.

## **2. THE NATURE OF MATHEMATICAL ECONOMICS**

Mathematical economics is not a distinct branch of economics in the sense if that public finance or international trade is. Rather, it is an approach to economic analysis, in which the economist makes use of mathematical symbols in the statement of his problem and also draws upon known mathematical theorems to aid in his reasoning. As far as the specific subject matter of analysis goes, it can be micro- or macroeconomic theory, or public finance, or the economics of underdeveloped countries, or what not. Using the term mathematical economics in the broadest possible sense, one may very well say that every elementary textbook of economics today exemplifies mathematical economics insofar as geometrical methods are frequently utilized to derive theoretical results.

The economic system may be thought of as a composite of mutually interrelated industries. In a comprehensive system, all industries have to be related to one another. In general, each industry buys its raw materials or inputs from other industries and sells some of its output to other industries in the system. There may be cases of some industries not buying from other industries and buying only from the primary producing sector. There may also be cases of industries selling their output not to other industries but only to the final consumption sector. But circular interdependence remains a common feature of the economic system. Such a comprehensive system cannot be managed, in a practical sense, by the usual methods.

Leontief's input output analysis gives the formulation of general economic equilibrium in terms of industries. The method is suitable for immediate empirical applications and is a simplified version of the production function equations of the general equilibrium system. The basic unit is the industrial sector and not the firm and a simple linear production function is used.

## **3.ROLE OF SUGAR FACTRIES IN AGRICULTURAL AND ECONOMIC TRASFORMATION**

Sugar co-operative for their expansion gave importance to better sugarcane production, supply of appropriate agricultural inputs to farmers and increased irrigation facilities in their area of operation. In addition growth of educational facilities, medical facilities, etc. were also undertaken as a part of area development by these co-operatives to growth of ancillary units, like paper plants, distillery units etc. which in turn increased employment and led to further industrial development in the rural areas. The success of sugar co-operatives in their commitment to area development led to growth of other agro-based processing units like dairy co-operatives, spinning mills, fruit processing units and such agro based industrialization helped in the development of agriculture and brought about the necessary transformation of the rural areas and in the process the benefits of these activities reached the farmers and they too benefited and progressed. Such process of rural transformation and change is very noticeable in western Maharashtra and more so in Solapur district where the co-operative sugar factories have indeed become the 'Growth Centers' for rural development and change.

## **III. CONCLUSION**

Mathematical programming pertains to the overlapping area of economics along with the tools of decision sciences such as mathematical programming, statistics and programming as applied to business programming problems. Various schemes have adopted by sugar factory for the surrounding rural area development in which Agriculture exhibition, Computer Training to employee etc.

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