

CHAPTER 6

MAJOR FINDINGS AND POLICY IMPLICATIONS OF THE STUDY OF THE STUDY

6.1 Major Findings of the Study

The study has been found the following major results:

1. The productivity of Sugar industry is declined during the study period 1998-99 to 2014-15.
2. Regress in technological change declined the total factor productivity of sugar industry. Poor research and development is the factor behind the poor Total Factor productivity in the sugar industry of India.
3. The result comes from the analysis shown constant return to scale and pure efficiency also shown no change. Technical efficiency is near to efficient frontier during the whole study period industry.

6.2 Policy Implication of this study

The empirical study shows that on an average, sugar industry of India have registered a negative Total factor productivity growth rate during the study period. The growth is observed highest in 2004-05 (2.5%) and lowest in 2007-08 (-6.5%) and MPI average value is less than ($<$) 1 (0.992) which depicts the declined in TFPCH. The decomposition of TFPG into technical change (frontier shift) and technical efficiency change (catch up effect) reveals that the negative growth in the TFP is only due to technological regress, as the technical efficiency reveals a positive growth. On the bases of the study results there are some suggestion to improve the condition of Sugar firms in India.

1. In sugar industry, there is a need to improve both technical efficiency and Technological progress. Improvement in technical efficiency requires improvement in quality of input like capital and labor.
2. The management phase is also play a vital role in terms of capital. These strategies will improve the technical change as well which also relies on managing technology and adoption capability of firms.
3. The Research and Development (R & D) activities can play a vital role to bring technological progress. More qualitative research and development is required to improve the productivity and quality of sugarcane. To increase in the technical change there is need to increase in the productivity, efforts could be made to increase the research and development (R & D) activities in this industry. Therefore firms in the sugar industry need greater investment in (R & D) activities and adoption of new technologies.
4. Increase in skilled worker through human resource development reduces skills shortage which obstructs technological adoption. Good managerial skills are needed to take decisions regarding the investment in innovations in sugar industry.
5. The research and development activities are necessary to increase the productivity of by products which help to reduce the sugar market price internationally.
6. Ethanol attaining from the By-product of sugar firms Mossase can be blending up with petrol. So firms must tight-up with the petroleum companies to buy ethanol from them. One side which helps government to reduce the increasing BOP (Balance of Payment) due to high imports of petroleum products and on other side it helps to firms to make their profit.
7. High Quality transportation is required to attain maximum possible recovery of Sugarcane. Because after a sugar is reduced from sugarcane.

8. Sugar firms must invest in the machinery which helps to generate and distribute steam power for electricity which is attaining from its by-product bagasse. Firms can tight-up with other small industries to buy their surplus electricity and make their firms Profitable.
9. High quality paper mills established near the sugar mills to make high quality paper as per the quality of bagasse. There is two profit of this first is firms efficiency increased in cost and second is to save environment from the wastage of sugar industry.
10. Technique of attaining sugar per quintal of sugarcane should be improve, which make industry cost efficient.

All the above suggestions will be helpful to improve the sugar industry profitable and improve their productivity, efficiency and technological progress. It will have a positive effect on the international trade of country, consumers of country and also generates more employment in the industry. Without efficiency in any industry and economy sustainable development is not possible. It helps to best utilization of resources.

6.3 Limitations of the study

The Limitations of the study are as follow

1. There are certain other parameters and techniques to measure the performance of sugar industry in India. This study is limited up to the DEA (Data Envelopment Analysis) and MPI (Malmquist Productivity Index).
2. The time period is taken for the study is from 1998-99 to 2014-15. The result may vary if time frame is extended.

6.4 Further Research Directions

The present study is helpful for the further researchers. There are a lot of future scopes of the present study. Few are discussed below:-

1. Present study focuses on the sugar industry but in the modern economies there is need to take look up on the other sectors too. Various industries like Jute, cotton, paper, coal, electricity etc. can be included in study Area.
2. The study can be extended on the manufacturing sector of India and inter-state perspectives study can be done by the researchers.
3. The study can be extended on the international economics topics like comparison the total factor productivity and its sources on the economies, international organizations like BRICS, SAARC and other economic organization. Because it helps to find out the areas of a firm or industry which are becomes the barrier in the efficiency of any firm or an industry. Technological progress helps to make cheaper good by the optimum use of allocative resources which is the base of international trade.