

How can we use a mathematical model in order to analyze and improve the efficiency of a productive activity?

Mariana Nikolla

Agricultural University of Tirana, Albania

Elfrida Dishmema

Agricultural University of Tirana, Albania

Orkida Totojani

Agricultural University of Tirana, Albania

Bedri Dragusha

University of Pristina, Kosovo

Abstract

Beer business industry is one of the most profitable agro-processing industries in the country. It has increased by expanding local and international market. There are 80 small and large beer factories that have their activity in Albania. The leading domestic beer manufacturers are: "Stela" beer, "Tirana" beer, "Korca" beer, "Kaon" beer, "Norga" beer, etc. They have invested millions of euros in terms of improving the quality of their production. Stela beer was the first private beer active in the Albanian market. Its factory production founders of Stela beer responded to the market by investing in the development of technology, modern equipment and science. Stela beer processing and production systems have been improved continuously. The investments today are at around 20 million dollars. The factory has a considerable number of employees and a production capacity of around 250,000 hl per year. This article uses information obtained for beer production during the period 2003-2016. Through non-parametric mathematical model Dea, the impact of production factors such as investment, advertising, expenses, capital and number of employees in the production of beer during the study period is analyzed. The analysis showed that the best years or more efficient years in the use of the quantity of inputs for the period 2003-2016 are 2007, 2014 and 2015. The years 2003, 2010 and 2012 are less efficient by Dea analysis. The study also showed the best possible combinations of inputs improving the efficiency of inefficient years in the Stela Beer production.

Keywords: mathematical model, production, efficiency, Stela beer, Albania.

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