

A Hybrid Method for Prediction and Assessment Efficiency of Decision Making Units: Real Case Study: Iranian Poultry Farms

ABSTRACT

The objective of this article is an evaluation and assessment efficiency of the poultry meat farm as a case study with the new method. As it is clear poultry farm industry is one of the most important sub- sectors in comparison to other ones. The purpose of this study is the prediction and assessment efficiency of poultry farms as decision making units (DMUs). Although, several methods have been proposed for solving this problem, the authors strongly need a methodology to discriminate performance powerfully. Their methodology is comprised of data envelopment analysis and some data mining techniques same as artificial neural network (ANN), decision tree (DT), and cluster analysis (CA). As a case study, data for the analysis were collected from 22 poultry companies in Iran. Moreover, due to a small data set and because of the fact that the authors must use large data set for applying data mining techniques, they employed k-fold cross validation method to validate the authors' model. After assessing efficiency for each DMU and clustering them, followed by applied model and after presenting decision rules, results in precise and accurate optimizing technique.

Keyword: Artificial Neural Network, Data Envelopment Analysis, Decision Tree, Efficiency, Poultry Meat Farming