A DEA/GM evaluation model for the efficiency and effectiveness of airlines

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Abstract

Because of the economic development and earnings promotion, tourism has become a necessary activity for releasing stress and relaxation. According to the statistical data from the Tourism Bureau of Taiwan, the tourism industry in Taiwan became a competitive market which can not be ignored in the whole world. However, the tourism industry must depend on the aviation industry to impel. This paper focuses on investigating the operation of the aviation industry, performance evaluation of specified airlines, especially, forecast the passenger volume. Forecasting can improve the effectiveness, subsequently raising efficiency. Therefore, it improves the triangular transit performance evaluation model which was proposed by Fielding et al.. The indicators not only include the operation and financial aspects but also the safety aspect. Furthermore, the model is evaluated by Data Envelopment Analysis (DEA). By the slack variable analysis of DEA, various department managers may take advantage of this to understand the operation conditions of its department and contribute to improve or enhance the efficiency and effectiveness of its department. Finally, gray forecasting is used to forecast the passenger volume. Prediction of passenger volume in advance can raise efficiency and effectiveness to lead to heighten the competitiveness of the aviation industry in the market.

Keyword：Performance Evaluation, Airlines, Grey Forecasting, DEA.