# Using Fuzzy Multi-Objective Data Envelopment Analysis on the Performance of Environmental Protection Administration

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## ABSTRACT

People always improve the quality of living and eco-awareness by the economical development and GNP advancement in Taiwan. The government established the environmental protection units to keep quality of living, include of air, noise, water, litter, environmental sanitation and so on. Recently, although every environmental protection unit makes the quality of living actively, people can not feel the effects. In this study, we make performance evaluation of environmental protection units and we can understand performance of environmental protection in all cities in Taiwan. There are few papers to discuss environmental protection performance in Taiwan. In this study, integration of all Public Nuisance Dispute items and use the Fuzzy Multi-objects DEA method to criticize performance of all countries environmental protection in Taiwan from 2002 to 2005. Calculation of the productive efficiency, technical efficiency, scale efficiency by CCR model and BCC model and compare with multi-periods by window analysis and make the direction of improving performance of all countries in the further in Taiwan. After analysis all data by Fuzzy Multi-Object DEA, we can find the rules of environmental protection performance. As result, we find there is not enough resource (per ten thousand people) in the best cities in Taiwan (beside of Taichung city): Hsinchu County, Yunlin County and Chiayi County. The effective rate 74.5 is not good, because that is no effective rate of technology. So the environmental protection units must find better managing method to help the bad performance cities. In this study, we use a group of same weight to solute the effective rate of all cities. Difference of other traditional DEA method, we find the new method is more effectively and functionally.

Keywords : Environmental Protection ; Performance Evaluation ; Fuzzy Multi-objects DEA ; Data Envelopment Analysis

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