

**Using Statistical Data and Signed Distance of Fuzzy  
Aggregate Evaluation Method on Application of  
Measuring Service Quality of Hotel**

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**Abstract**

In Taiwan nowadays, many service industry sectors face intense competition and diverse customer demands, the hospitality industry has certainly not been exempted. Therefore, how to increase the competitive advantage through high service quality becomes the crucial factor in hotel industrial survival and development. Recently, many literatures focus on evaluation of service quality on hotel industry and they use statistical method to analyse the data of questionnaire with sampling. The statistical method can reveal the mean of satisfactory level of each evaluation factor, and it also shows the priority factors of the service quality for improvement. However, the satisfactory level of evaluation dimension and aggregate evaluation results can't be achieved by using statistical method. In order to obtain the aggregate evaluation results based on statistical data, we develop a two-stage fuzzy aggregate evaluation model as a tool for the study of service quality of hotel industry. In summary, this paper provides a useful evaluation method for assessing the service quality of hotel industry.

*Keywords:* Two-stage Fuzzy Aggregate Evaluation, Service Quality, Signed Distance, Hotel Industry.