# Fuzzy Balanced Allocation Problem with Efficiency on Servers

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# Abstract

This paper deals with the problem of allocation customers to servers with regards to some fuzzy parameters. In this problem each customer is allocated to the nearest server, and assignment of a customer to a server involves the cost to the customer, which is due to the customer's fuzzy distance to the server. Each server has a fuzzy efficiency which is calculated by the data envelopment analysis method with fuzzy parameters. The higher efficiency of the server to which a customer is assigned, cause more profit for the customer. The goal is allocation of all customers to the servers such that the profitability of the least profits for the customers is maximized. In addition, to prevent queuing in some servers, we consider the balancing on allocation customers to the servers. Therefore, the second goal is minimizing the difference between the maximum and minimum number of customers that are assigned to different servers. A fuzzy bi-objective programming model is presented for the problem, then two fuzzy approaches are proposed for solving this model.


# Full Text

This preprint is available for download as a PDF.

# Figures

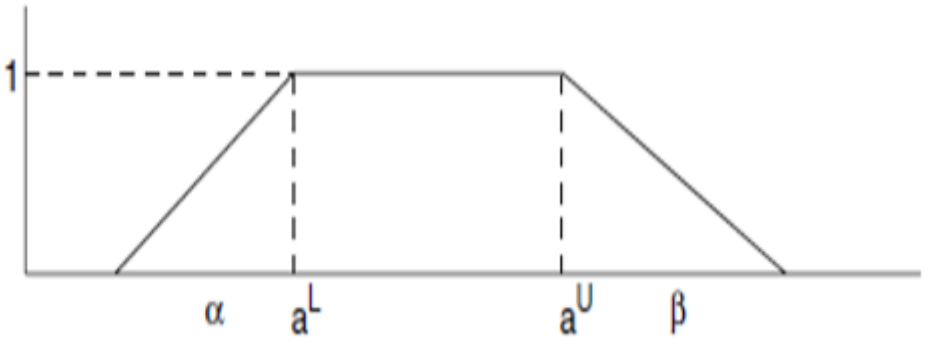


**Figure 1**

Trapezoidal fuzzy number.

# Supplementary Files

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