CAPACITATED LOT SIZE PROBLEMS USING FUZZY NUMBERS

孫正民、白炳豐

E-mail: 9126821@mail.dyu.edu.tw

ABSTRACT

The capacitated lot size problems have been modeled based on the assumption that the capacity is known exactly. However, in practical applications, this is seldom the case. Especially as the planning horizon increases, more uncertainty is embedded in the capacity forecast. In the most situations, the capacity is estimated as being within a certain interval without any knowledge of a probability distribution within the interval. Due to this interval estimation characteristic, representation of the capacity is more realistically and naturally through the use of a fuzzy number. The main advantages of such a representation is that the decision-maker does not have to give a single precise number nor a probability distribution to represent the capacity. This investigation introduces the application of fuzzy sets theory to the capacitated lot size problems, where decision making is characterized by the lack of precise future capacity estimates. In this work, the capacitated lot size heuristics borrowed from Florian and Klein[14] are modified to accept fuzzy capacity.

Keywords : capacitated lot size problems ; fuzzy set theory

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