

Partition the ratio and additive scale effect for AHP

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Abstract

The conventional model of AHP which required Decision Maker (DM) to use “ratio scale” representing judgments in the form of paired comparisons. But, according to the perceptive models of mankind in the preference comparison, it is inevitably confounding additive scale preference, and thus enables DM making ratio judgment among a cluster of relevant objectives is inconsistent (intransitivity). In this study, it is assumed that the input comparison data of AHP is composed of ratio and additive preference effects, and proposed a procedure to decompose additive scale effect from ratio judgmental. So that we can objectively estimate the relative weights of criteria by considering these both effects simultaneously.

Keyword : Analytic hierarchy process (AHP), ratio scale, additive scale.