

## **Confidence Interval Approach to Consistency Ratio Rule in the Applications of Analytic Hierarchy Process**

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### **Abstract**

Analytic Hierarchy Process (AHP) is a multi-criteria decision-making approach which employs a pairwise comparison procedure based on a scale of preferences among sets of alternatives. The pairwise comparisons of the alternatives/attributes are entered in a matrix. The consistency of the judgement is revealed by consistency ratio (CR). This paper deals with the CR rule in AHP. Saaty's 100% rule provides a judgement in AHP in which, if the CR rule for a particular judgement matrix is 0.10 or less, it is considered to be acceptable. If the CR is more than 0.10, then the decision-maker may be required to revise the pairwise comparison. This is simply a guideline. This may be a time-consuming procedure, especially in case of group decision-making. An attempt is made in this paper with the help of a case study to demonstrate the combined use of a heuristic approach – confidence interval approach and Saaty's 10% rule to evaluate the consistency of the individuals in the decision-making group.