

# OPTIMUM PRIORITY WEIGHT ESTIMATION METHOD FOR PAIRWISE COMPARISON MATRIX

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## ABSTRACT

What weight estimation method to choose in the Analytic Hierarchy Process is an important study subject, because each local estimate weight value depends on an employed weight estimation method and hence the global decision making result of the AHP, which is obtained by integrating estimated local weights, is also affected by the employed weight estimation method. The optimality of the weight estimation method is defined, and on the basis of this optimality concept, a simulation experiment is designed and carried out to statistically find out the optimum weight estimation method in the framework of row-wise generalized mean weight estimation with a parameter  $p$ . From the simulation experimental result, the application guideline for the optimum weight estimation method is established, classified according to the magnitude of Consistency Index value, the pattern of estimated weight, and the number of comparison items.

**Keywords:** optimum priority weight, weight estimation method, simulation experiment, generalized mean, pairwise comparison