INCONSISTENCY OF PAIR-WISE COMPARISON MATRIX BASED ON GEOMETRIC MEAN – A COMPARISON TO PRINCIPAL EIGENVECTOR METHOD

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ABSTRACT

In this paper, inconsistency of pair-wise comparison matrix based on the method of geometric mean is investigated. An inconsistency index of reciprocal matrix is introduced based on a newly designed method of logarithmic least squares for eliciting associated weights. Some basic properties of the index are derived, comparison with the classical inconsistency index based on maximum eigenvalue is presented and simple illustrating examples demonstrated.

Keywords: data analysis, decision making, pair-wise comparison matrix, reciprocal and consistent positive matrix, inconsistency