DECISION WEIGHT FUNCTION: ITS FORM AND PSYCHOLOGICAL INTERPRETATION

Shyhnan Liou[1], Chung-Ping Cheng[2]

[1]*Department of Labor Relations, National Chung Cheng University*
[2]*Institute of Psychology, National Taiwan University*

Empirical studies have shown that the probability weighting function is in an inverse S shape, which is concave for the low probability range and convex for the high probability range. Gonzalez and Wu (1999) proposed discriminability (involving the curvature of a function) and attractiveness (involving the elevation of a function) as two distinctive features of the weight function. This research aims to examine factors that influence these two independently psychological properties. We proposed that the degree of perceived ambiguity influences probability discriminability by diminishing sensitivity, and ambiguity attitude influences attractiveness that modulates the elevation of a weighting function. Applying these two features as criteria, Study 1 tested three different functional forms of decision weight proposed by Einhorn and Hogarth (1985), Kahn and Sarin (1988), and Lattimore, Baker, and Witte (1992). Results showed that these three models are all insensitive to discriminability at extreme parameter values. By reparameterizing the function of Lattimore et al., we developed the Liou model which claracterizes decision weight with two parameters such that one parameter θ represents the curvature (discriminability) and the other Pc represents the elevation (attractiveness). Using parameter values of the Liou model as indicators, Study 2 manipulated the degree of perceived ambiguity by evidence weight (relative amount of missing information) in Experiment 1, and feeling of competence (expertness and novice of the decision task) in Experiment 2. Ambiguity attitudes were manipulated by gain or loss perspective in Experiment 1, and by seriousness of consequence in Experiment 2. Results of these two experiments convergently supported the hypothesis that the degree of perceived ambiguity modulates probability discriminability which shapes the curvature of a decision weight function, and that the ambiguous attitude of decision makers influences attractiveness of the choice task which modifies elevation of the function. Based on empirical data of Study 2, we then tested curve fitness and analyzed the sensitivity of models discussed in Study 1. Results indicated that the Liou model fits best and is most sensitive in representing the decision weight function. Implication of these findings for psychological significance of decision weight function is discussed.

Keywords: Decision under uncertainty, Perceived ambiguity, Ambiguous attitude, Decision weight function