

A Simple Way to Elicit Subjective Ambiguity: Application to Low-dose Radiation Exposure in Fukushima

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Abstract: We develop a new and less burdensome methodology called the high-and-low choice method to elicit and analyse ambiguity in public risk perception. We apply this method to the cancer mortality risk due to low-dose radiation exposure around the Fukushima Daiichi nuclear power plant, a real uncertain problem caused by the accident that is the second severest one after the Chernobyl case. The empirical results shed new light on Slovic's (1987) seminal work; considering radiation as an unknown risk made public perceptions for the mortality rate more ambiguous, and the dread image led people to perceive larger and more ambiguous risks. In addition, those who accessed popular information media (television, newspaper, internet, social network services, and conversations with neighbours) tended to have more negative and ambiguous perceptions. We also provide informal, but clear, evidence suggesting that this ambiguity significantly affects their welfare.

Keywords: subjective ambiguity, belief elicitation, structural analysis, mortality rate, radiation exposure, Fukushima