

Coping with Imprecise Information

Jean-Marc Tallon

We provide a model of decision making under uncertainty in which the decision maker reacts to imprecision of the available data. Data is represented by a set of probability distributions. We axiomatize a decision criterion of the maxmin expected utility type, in which the revealed set of priors explicitly depends on the available data. We then characterize notions of comparative aversion to imprecision of the data as well as traditional notions of risk aversion. Interestingly, the study of comparative aversion to imprecision can be done independently of the utility function, which embeds risk attitudes. We also give a more specific result, in which the functional representing the decision maker's preferences is the convex combination of the minimum expected utility with respect to the available data and expected utility with respect to a subjective probability distribution, interpreted as a reference prior. This particular form is shown to be equivalent to some form of constant aversion to imprecision. We finally provide examples of applications first to unanimity rankings of imprecision and risk and then to optimal risk sharing arrangements.