

Variational Bewley Preferences

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Abstract

This paper characterizes preference relations over Anscombe and Aumann acts and gives necessary and sufficient conditions that guarantee the existence of a utility function u on consequences and an *ambiguity index* η on the set of probabilities on the states of the nature such that, for all acts f and g ,

$$f \succsim g \Leftrightarrow \int u(f)dp + \eta(p) \geq \int u(g)dp, \forall p \in \Delta.$$

The function u represents the decision maker's risk attitudes, while the ambiguity index $\eta(p)$ about the prior p captures its relative degree of plausibility. The axiomatic basis for this class of preference is completeness and transitivity, and an interesting property is that cycles are avoided.

The Bewley's model of choice under uncertainty with transitive and incomplete preferences is included in this class of preferences as well as the subjective expected utility model. As new examples, we can describe some special class of preferences, *e.g.*, the intransitive and incomplete entropic Bewley preferences obtained through the relative entropic ambiguity index.