Title: Robust Utility in Continuous Time

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Abstract:

We study a general class of utility processes $V(c) = (V_t(c))$, where $V_t(c)$, a dynamic utility operator, is a decision criterion that quantifies a decision maker's evaluation of uncertain consumption streams c. We call this dynamic utility operator robust and its distinctiveness is that it features the diffusion of the process $V(c)$, i.e., the utility is affected by its variability. A main result of this paper is to identify a general class of robust dynamic utility operators that are monotone and, yet, irreducibly depend on the utility variability. A principal motivation for studying such robust dynamic operators is that, by incorporating utility variability into the decision criterion, they bring a facility required to adapt models of ambiguity sensitive preferences to Brownian environments. In particular, those preference models which permit flexibility in ambiguity attitudes. We demonstrate this facility by obtaining continuous-time extensions of two prominent ambiguity aversion frameworks which incorporate variable ambiguity attitude, the smooth ambiguity model and the α - maxmin expected utility.