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Preferences over all random variables: Incompatibility of convexity and continuity*

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Abstract

We consider preferences over all random variables on a given nonatomic probability space. We show that non-trivial and complete preferences cannot simultaneously satisfy the two fundamental principles of convexity and continuity. As an implication of this incompatibility result there cannot exist any non-trivial continuous utility representations over all random variables that are either quasi-concave or quasi-convex. This rules out standard risk-averse (or seeking) utility representations for this large space of random variables.

Keywords: Large Spaces; Preference for Diversification; Utility Representations
JEL Classification Numbers: D81

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