THE MISSING LINK: A Unifying Theory of Behavior under Risk and over Time

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Abstract
The majority of decisions involve consequences that are both risky and delayed. For instance, investments in education and retirement savings are characterized by particularly long time horizons. While the bulk of previous research has focused on measuring atemporal risk preferences, a robust body of evidence has emerged showing that behaviorally revealed risk and time preferences interact in important ways. Risk tolerance is delay dependent, increasing with the delay to the resolution of uncertainty, and patience is higher for uncertain than for certain payoffs. Neither the classical models of decision making, expected utility theory and discounted utility theory, nor their contestants are able to accommodate these facts, so that hitherto there exists no common unifying explanation. Here we show that the inherent uncertainty of future events conjointly with people’s proneness to weight probabilities nonlinearly generates a unifying framework for explaining time-dependent risk tolerance, risk-dependent patience, preferences for late resolution of uncertainty and other puzzling interaction effects between risk and time.