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Subjective Probability in Behavioral Economics and Finance: A Radical Reformulation

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Abstract

Behavioral finance depends intimately on the notion of subjective probability, which has been universally treated as one of the two forms of probability. A substantial body of work and recent experimental results show conclusively that this approach is invalid: subjective and objective probabilities cannot be treated as two sides of the same coin. This raises serious questions about calculations based on that assumption, decisions based on those calculations, and what to do if assigning numerical values and calculating expected values based on subjective probabilities is invalid. This paper presents a radical re-formulation of subjective probability, showing that what have been called "subjective probabilities" are properly formulated as uncertainty appraisals, re-descriptions of states of affairs carrying tautological implications for action. A novel formulation of the decision maker's field-of-view, based on the concept of Actor,

Observer, and Critic roles, combined with the uncertainty appraisal formulation, is used to develop new methods for evaluating data, finding patterns in data, and integrating probabilities and uncertainty appraisals, that is, those aspects that have, until now, been called “subjective probabilities.”

Keywords:

Subjective probability | Decision theory | Homo commmunitatis | Probability theory

Notes

1. A formulation of the concepts of intentional action, deliberate action, and community in mathematical formalism may be found in Jeffrey [2010].

2. Poincaré [1905/1970] noted that “axioms are definitions in disguise”; that is, they articulate the basic relationships in a mathematical domain. The principles of homo economicus articulate the domain of behavior. As Putman discusses in his introduction to Ossorio [2012], this does not mean that the principles function as postulates or assumed truths.