Risk, Uncertainty and Ambiguity

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Much recent work in economics, operations research, statistics, and other fields has focused on developing sharper models to account for randomness.

Central in this work is the problem of distinguishing between risk, in which randomness is characterized by known probabilities; uncertainty, in which randomness is characterized by probabilities that are not known or may vary across decision makers; and ambiguity, in which randomness does not have a probabilistic characterization. Examples in which such distinctions arise and can have significant implications include the recent financial crisis and ongoing issues related to climate change. I will survey some recent work of mine and others on decision-making under randomness and the effects of randomness on the behavior of markets and other mechanisms for allocating resources.