Non-additive Measure in Economics

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December 23, 2013

Abstract

This talk surveys the use of non-additive measures in economics, focusing on their use in preference theory. In economics, the risky situation where the probability measure is known and the uncertain situation where even the probability measure is unknown had tended not to be distinguished. This is mainly because of Savage's theorem which states that if an agent complies with some set of behavioral axioms, she may be regarded as trying to maximize the expected utility with respect to *some* probability measure. This is called subjective expected utility (SEU) theory. However, the plausible and robust preference patterns which cannot be explained by SEU is known. The most famous one among them is Ellsberg's paradox. The attempts to resolve these anomalies by using non-additive measures were initiated by D. Schmeidler and I. Gilboa in 1980's. The main purpose of this talk is to explain their theories, emphasizing representation theorems by means of non-additive measures. We will see that their models nicely resolve Ellsberg's paradox.