On λ-Quantile Dependent Convex Risk Measures

Abstract

In this paper we will observe a class of convex measures of risk whose values depend on the random variable only up to the λ-quantile for some given constant $\lambda \in (0, 1]$. For this class of convex risk measures, the assumption of the Fatou property can be weakened and we provide the robust representation theorem via convex duality method. As an example, the Weighted Value-of-Risk, which includes Value-at-Risk and Conditional Value-at-Risk as special cases, will be discussed in discrete, continuous and mixed probability models.