

Stochastic cooperative games - abstrakt (EN)

Bc. David Ryzák

May 2024

This thesis explores stochastic cooperative games, viewed here as cooperative games with a stochastic characteristic function, representing a generalization of the classical deterministic model by von Neumann and Morgenstern. To address the inherent randomness, it is essential to either access additional information about the game or understand its stochastic structure thoroughly. The main contribution of this thesis is the exploration of solution concepts within the stochastic context, defined by assuming the risk averse behaviors of the players. This is particularly achieved through the application of the second order stochastic dominance (SSD). We both define and examine the notion of the SSD-dominating core across various distributions of the characteristic function and apply it to the multiple newsvendors problem. Our findings concerning the nonemptiness of the SSD-dominating core offer a framework for addressing risk aversion in stochastic cooperative games without requiring specific assumptions about the levels of risk aversion among players.