



Stop loss order and version of risk measures in connection with inequality criteria

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Abstract

Stochastic orders have shown to be useful notions in several areas of economics, the inequality analysis, risk analysis, reliability or portfolio insurance. Since the 1970, stochastic dominance rules have been used in comparison and analysis of poverty and income inequality. Recently stochastic orders have also played important role in the interpretation of decision under risk and actuarial suer us with comparing and measuring different risks.

Given a random variable $(X - t)_+$ where $(x)_+ = \max\{x, 0\}$ represent the amount by which X exceeds the t .

The function $\Pi_X(t) = E((X - t)_+) = \int_t^\infty \bar{F}(x)dx$ is called stop loss transform.

We will focus on stochastic dominance order, stop loss order and convex order and their links. The convex order is not location free. This means that only random variables having the same mean are comparable in convex order and dilation order, with Lorenz order, Total value of risk, conditional expectation, conditional value at risk, expected shortfall and expected proper formed shortfall have concepts related to Lorenz curve criteria.

Some theoretical and characterization results linking with the various ordering especially concentration on inequality measure, insurance criteria, step loss order and expected proportions shortfall is another direction of this paper. Also, a view based on distortion is the last part of this note.

Keywords: Risk measure, Order statistics, Lorenz order, Distortion function, Expected shortfall.

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