

Title: Multivariate Pareto distribution

Author: Oleksandr Novytskyi

Department: Department of Probability and Mathematical Statistics (305. • 32-KPMS)

Supervisor: RNDr. Lucie Mazurová, Ph.D., Department of Probability and Mathematical Statistics (305. • 32-KPMS)

Abstract: This bachelor thesis focuses on three methods of constructing multivariate Pareto distribution, i.e. multivariate distribution, where marginal distributions are univariate Pareto distributions. We provide survival and density functions for these models, which are used for the numerical studies and valuation of insurance product, specifically a yearly life annuity paid to each insured in the group, whose remaining life time is given by the multivariate Pareto distribution.

Keywords: multivariate distribution, Pareto distribution, survival function, density, life annuity.