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MAXIMUM LIKELIHOOD ESTIMATION FOR UNKNOWN PARAMETERS OF A FELLER PARETO DISTRIBUTION USING TYPE I CENSORED DATA

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Abstract

The Feller-Pareto (FP) family traces its roots back to Feller [An Introduction to Probability Theory and Its Applications, Vol. 2, 2nd ed., Wiley, New York, 1971] but it was first defined and investigated by Arnold and Laguna [On Generalized Pareto Distributions with Applications to Income Data, International Studies in Economics, Department of Economics, Iowa State University, Ames, IA, 1977]. The FP family is a very general unimodal distribution which includes a variety of distributions as special cases, and is known under several other names: in econometrics it is called *a generalized beta distribution of second kind* (GB2), whereas in actuarial science the term *transformed beta distribution* is used. It may also be considered as *a generalized F distribution*. Arnold [3] introduced an additional location parameter to the distribution that is further referred to as a Feller-Pareto distribution. In this paper, we estimate the unknown parameters of a Feller-Pareto distribution derived by Arnold [Pareto Distributions, International Cooperative Publishing House, Fairland, MD, 1983], from censored type I samples using the method of maximum likelihood, asymptotic variance matrix is given as well as a numerical illustration and different special cases may be obtained from the present result.