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Ammar M Sarhan* (asarhan@mathstat.dal.ca), , Canada. *Two parameter discrete distribution with a bathtub hazard shape.*

This paper presents a two-parameter discrete distribution based on a continuous two-parameter bathtub distribution. As far as I know, it is the only two-parameter discrete distribution which shows a bathtub shaped hazard function. Some statistical properties of the distribution are discussed. Three different methods are used to estimate its two unknown parameters. The point estimators of the parameters have no closed form solutions. The bootstrap method is used to estimate the distributions of these point estimators. Different approximations of the interval estimations for the two parameters are discussed. Real data sets are analyzed to show how this distribution works in practice. A large simulation study is performed to investigate the properties of the estimations obtained and compare their performances. (Received October 17, 2015)