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INDIRECT ASSESSMENT OF THE BIVARIATE SURVIVAL FUNCTION

NADER EBRAHIMI

Division of Statistics, Northern Illinois University, DeKalb, IL 60115, U.S.A.

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Abstract. Estimating the bivariate survival function has been a major goal of many researchers. For that purpose many methods and techniques have been published. However, most of these techniques and methods rely heavily on bivariate failure data. There are situations in which failure time data are difficult to obtain and thus there is a growing need to assess the bivariate survival function for such cases. In this paper we propose two techniques for generating families of bivariate processes for describing several variables that can be used to indirectly assess the bivariate survival function. An estimation procedure is provided and a simulation study is conducted to evaluate the performance of our proposed estimator.

Key words and phrases: Compound Poisson process, Gamma process, inverse Gaussian, Laplace transformation, Poisson process, survival function.