MULTIVARIATE GENERALIZED EXPONENTIAL DISTRIBUTION

JIANYONG MU AND YANLING WANG
COLLEGE OF MATHEMATICS AND INFORMATION SCIENCE, HENAN NORMAL UNIVERSITY, HENAN, 453007, CHINA
E-MAILS: JIANYONGMU@163.COM, BIGDUCKWYL@163.COM

Abstract. The paper mainly aims to extend the bivariate generalized exponential distribution into multivariate exponential distribution. It also provides the explicit forms of the joint cumulative distribution function and joint probability distribution function, and further discusses that the EM algorithm can be used to compute the maximum likelihood estimators of the unknown parameters.

AMS Classification: 62E15, 62F10, 62H10, 62H12

Keywords: Generalized exponential distribution, Joint probability density function, Maximum likelihood estimators, EM algorithm

1. INTRODUCTION

Generalized exponential(GE) distribution was introduced by Gupta and Kundu [3]. The GE distribution has lots of interesting properties and it can be used effectively to analyze several skewed life time data. The review article of Gupta and Kundu [2] have introduced a current account on GE distribution.

Recently, some works have been carried out on the extending of the GE to the multivariate set up. Sarhan and Balakrishman [5] have defined a new bivariate distribution using the GE distribution and exponential distribution and derived several interesting properties of this new distribution. Kundu and Gupta [4] have

JOURNAL OF DYNAMICAL SYSTEMS & GEOMETRIC THEORIES
VOL. 8, NUMBER 2 (2010) 189-199.