

DEANSHIP OF SCIENTIFIC RESEARCH
FAST TRACK RESEARCH GRANTS
FAST TRACK RESEARCH PROJECT NO. SF-2007/45

Title of the Proposal: A Study of the Bivariate Unit-Gamma LogNormal (BUGL) Distribution

Duration of Project (in months) : 12 Proposed
Starting Date : January, 2007
Ending Date : January, 2008

Total Project Cost (SAR) : 49000

Submitted by: Signature:

Dr. Mohammad H. Omar, Assistant Professor, Math. Sciences Signature:

Dr. Anwar H. Joarder, Associate Professor, Math. Sciences

Date: November 1, 2006

APPROVALS:

Chairman: Date: Department of
Mathematical Sciences

Chairman, Research Committee:

..... Date:

Vice Rector for Graduate Studies and Scientific Research:

..... Date:

0. Abstract

The project aims at investigating some important characteristics of the unit-gamma LogNormal distribution. Only the conditional distribution and raw product moments are currently known. This bivariate distribution has found applications in areas such as survival data analysis and weather analysis. In this project, we will be deriving the central joint product moments, the standardized (Mahalanobis) moments, coefficients of skewness and kurtosis, the dependency function, Shannon entropy, hazard rate functions, reliability functions, and some other useful and related functions. Our investigation will lead to contribution of a relatively new bivariate distribution to the bivariate gamma family of distributions.