Bayesian Estimation and Inference for the Generalized Partial Linear Model Using Some Multivariate Conjugate Prior Distributions

Haitham M. Yousof
Department of Statistics, Mathematics and Insurance, Benha University, Egypt
haitham.yousof@fcom.bu.edu.eg

Ahmed M. Gad
Department of Statistics, Cairo University, Egypt
dr_ahmedgad@yahoo.co.uk

Abstract

We introduce a new bayesian regression model called the bayesian generalized partial linear model which extends the generalized partial linear model pioneered by Severini and Staniswalis (1994).This paper considers bayesian estimation and inference of parameters for the generalized partial linear model (GPLM) using some multivariate conjugate prior distributions under the square error loss function, We introduce a new algorithm for estimating the (GPLM) parameters by using bayesian theorem in more detail, Finally, Comparisons are made between (GPLM) estimators under using Bayesian Technique and without using it using simulation study.

Keywords: Semi parametric Regression, Generalized Partial Linear Model, Profile Likelihood Method, Generalized Speckman Method, Backftting Method, Likelihood Function, Bayesian Estimation, Bayesian Estimator, Conjugate Prior Distributions.