Estimasi Parameter Distribusi Exponentiated Generalized Burr Type X menggunakan Metode Gradien Konjugat Fletcher Reeves dan Broyden-Fletcher-Goldfarb-Shanno = Estimation of the Exponentiated Generalized Burr Type X Parameters using the Conjugate Gradient Fletcher Reeves and Broyden-Fletcher-Goldfarb-Shanno Methods

Nazhira Ghaisani, author

Abstrak

Distribusi Exponentiated Generalized Burr Type X merupakan distribusi hasil pengembangan dari distribusi Burr Type X berdasarkan kelas distribusi Exponentiated Generalized. Sifat-sifat statistik dan karakteristik distribusi Exponentiated Generalized Burr Type X meliputi fungsi kepadatan peluang, fungsi distribusi kumulatif, fungsi survival, fungsi hazard, momen, momen pusat, fungsi kuantil, \textit{mean}, variansi, koefisien variasi, \textit{skewness}, dan kurtosis dibahas pada skripsi ini. Penaksiran parameter dari distribusi Exponentiated Generalized Burr Type X menggunakan metode Maximum Likelihood Estimator, dilanjutkan dengan metode numerik Gradien Konjugat Fletcher Reeves dan Broyden-Fletcher-Goldfarb-Shanno. Metode Gradien Konjugat Fletcher Reeves dan Broyden-Fletcher-Goldfarb-Shanno dibandingkan dan dipilih metode terbaik untuk mengestimasi parameter distribusi Exponentiated Generalized Burr Type X, dievaluasi dari nilai \textit{mean squared error} terkecil. Sebagai ilustrasi, digunakan data severitas klaim asuransi pengangguran yang dimodelkan dengan distribusi Exponentiated Generalized Burr Type X. Uji Kolmogorov Smirnov digunakan untuk menguji kecocokan model distribusi Exponentiated Generalized Burr Type X dengan data severitas klaim, kriteria AIC dan BIC digunakan untuk memilih distribusi paling cocok dalam memodelkan data severitas klaim.

.....The Exponentiated Generalized Burr Type X distribution is a distribution resulting from the development of the Burr Type X distribution based on the Exponentiated Generalized distribution class. Statistical properties and characteristics of the Exponentiated Generalized Burr Type X distribution include probability density function, cumulative distribution function, survival function, hazard function, moment, central moment, quantile function, mean, variance, coefficient of variation, skewness, and kurtosis are discussed in this final project. Estimating the parameters of the Exponentiated Generalized Burr Type X using Maximum Likelihood Estimator method, continued with Conjugate Gradient Fletcher Reeves and Broyden-Fletcher-Goldfarb-Shanno numerical methods. The Fletcher Reeves and Broyden-Fletcher-Goldfarb-Shanno Conjugate Gradient methods were compared and the best method was chosen to estimate the Exponentiated Generalized Burr Type X distribution parameters, evaluated from the smallest mean squared error value. As an illustration, severity claim data of unemployment insurance claims is used which is modeled with the Exponentiated Generalized Burr Type X distribution. The Kolmogorov Smirnov test were used for to test the suitability of the Exponentiated Generalized Burr Type X distribution model with claims severity data, the AIC and BIC criteria were used to select the most suitable distribution in modeling claims severity data.