

# Distribusi Generalized Exponential Marshall Olkin = Generalized Exponential Marshall Olkin Distribution

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## Abstrak

Distribusi Generalized Exponential diperkenalkan oleh Rameshwar D. Gupta dan Debasis Kundu pada tahun 2007. Distribusi Generalized Exponential tersebut merupakan hasil generalisasi distribusi Exponential. Skripsi ini menjelaskan distribusi Generalized Exponential Marshall Olkin yang merupakan hasil dari perluasan distribusi Generalized Exponential menggunakan metode Marshall Olkin. Distribusi Generalized Exponential Marshall Olkin lebih fleksibel dari distribusi sebelumnya terutama pada fungsi hazardnya yang memiliki berbagai bentuk baik monoton (naik atau turun) maupun non monoton (bathub atau upside down bathub) sehingga dapat memodelkan data survival dengan lebih baik. Sifat fleksibilitas ini disebabkan karena penambahan parameter baru ke dalam distribusi Generalized Exponential. Selanjutnya dijelaskan beberapa karakteristik dari distribusi Generalized Exponential Marshall Olkin antara lain fungsi kepadatan peluang (fkp), fungsi distribusi kumulatif, fungsi hazard, momen ke-n, mean, dan variansi. Penaksiran parameter dilakukan dengan metode maximum likelihood. Pada bagian aplikasi ditunjukkan data survival yang berasal dari data Aarset (1987) berdistribusi Generalized Exponential Marshall Olkin. Selanjutnya distribusi Generalized Exponential Marshall Olkin dibandingkan dengan distribusi Alpha Power Weibull untuk mencari distribusi mana yang lebih cocok dalam memodelkan data Aarset (1987). Dengan menggunakan AIC dan BIC distribusi Generalized Exponential Marshall Olkin lebih cocok dalam memodelkan data Aarset (1987).

Generalized Exponential distribution was introduced by Rameshwar D. Gupta and Debasis Kundu in 2007. Generalized Exponential distribution was generated by generalized transformation of the Exponential distribution. This thesis explained the Generalized Exponential Marshall-Olkin distribution which is the result of the expansion of the Generalized Exponential distribution using the Marshall-Olkin method. The Generalized Exponential Marshall-Olkin distribution has a more flexible form than the previous distribution, especially in its hazard function which has various forms that it can represent survival data better. The flexibility characteristic is due to the addition of new parameters to the Generalized Exponential distribution. Futhermore, some characteristics of the Generalized Exponential Marshall-Olkin distribution was explained such as, the probability density function(PDF), cumulative distribution function, survival function, hazard function, moment, mean, and variance. Parameter estimation was conducted by using the maximum likelihood method. In the application section was shown survival data from Aarset data (1987) which distributed Generalized Exponential Marshall-Olkin distribution. Futhermore, Generalized Exponential Marshall-Olkin distribution was compared with Alpha Power Weibull distribution to decided the prominent distribution in modeling Aarset data (1987). Using AIC and BIC, Generalized Exponential Marshall-Olkin distribution more suitable in modeling Aarset data (1987).