ABSTRAK

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Judul Skripsi : **Estimasi Parameter dan Uji Kecocokan Distribusi *New Flexible Extended Weibull* pada Data *COVID-19***

Tujuan penelitian ini mempelajari distribusi *New Flexible Extended Weibull*. Model ini merupakan distribusi *Weibull* yang disubstitusikan ke distribusi *New Flexible Extended-X*. Distribusi *Weibull* yang digunakan adalah distribusi dua parameter yaitu parameter η dan θ. Karakteristik distribusi yang akan dibahas adalah rataan, varians, momen. Kemudian, parameter distribusi *New Flexible Extended Weibull* akan diestimasi menggunakan *Maximum Likelihood Estimation* (MLE). Karena bentuknya yang implisit, maka estimasi akan dilanjutkan menggunakan iterasi *Newton Raphson*. Dalam masa pandemi ini, ditampilkan studi kasus yang diambil data total kasus kematian COVID-19 dari seluruh provinsi di Indonesia pada 1 April 2021. Data diperoleh dari Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional. Kemudian dari studi kasus dihasilkan estimasi parameter sebesar $\eta = 0{,}02160$ dan $\theta = 0{,}58939$. Kemudian hasil itu akan digunakan untuk mencari karakteristik dari distribusi. Setelah itu dilanjutkan dengan uji kecocokan distribusi menggunakan *Akaike Information Criterion* (AIC). Sebagai pembanding akan digunakan distribusi *Weibull* untuk melihat seberapa baik distribusi *New Flexible Extended Weibull*. Dari hasil perhitungan AIC diperoleh sebesar 120.8752 dan distribusi *Weibull* sebesar 544.3725. Karena nilai AIC dari distribusi *New Flexible Extended Weibull* lebih kecil, maka dapat dinyatakan bahwa distribusi *New Flexible Extended Weibull* lebih baik dari distribusi *Weibull*.

Kata Kunci: Distribusi *New Flexible Extended Weibull,* Distribusi *New Flexible Extended-X,* Distribusi *Weibull, Akaike Information* Criterion (AIC), iterasi *Newton Raphson*.

ABSTRACT

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Research Title	**:**	***Parameter Estimation and Goodness of Fit for New Flexible Extended Weibull Distribution on COVID-19 Data***

The purpose of this research is to study the distribution of the New Flexible Extended Weibull. This model is a Weibull distribution which is substituted for the New Flexible Extended-X distribution. The Weibull distribution used is a two-parameter distribution, namely η *and* θ *parameters. The distribution characteristics that will be discussed are mean, variance, moment. Then, the parameter estimation of the New Flexible Extended Weibull distribution uses Maximum Likelihood Estimation (MLE). Because of its implicit form, it will be continued using Newton Raphson iterations. During this pandemic period, a case study was presented which took data on the total number of COVID-19 deaths from all provinces in Indonesia on April 1, 2021. The data was obtained from the* Komite Penanganan COVID-19 dan Pemulihan Ekonomi Nasional. *Then from the case study, parameter estimates of* $\eta = 0{,}02160$ and $\theta = 0{,}58939$ *were generated. Then the results will be used to find the characteristics of the distribution. After that, it was continued with a distribution fit test using Akaike Information Criterion (AIC). As a comparison, the Weibull distribution will be used to see how well the New Flexible Extended Weibull distribution is. From the results of the calculation of the AIC obtained by 120.8752 and the Weibull distribution of 544.3725. Because the AIC value of the New Flexible Extended Weibull distribution is smaller, it can be stated that the New Flexible Extended Weibull distribution is better than the Weibull distribution.*

Keyword**:** *New Flexible Extended Weibull Distribution, New Flexible Extended-X Distribution, Weibull Distribution, Akaike Information Criterion (AIC), Newton Raphson iteration.*