

INTISARI

MODEL MULTILEVEL REGRESI POISSON TERGENERALISASI ZERO-INFLATED

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Analisis regresi Poisson merupakan analisis regresi non linear yang memiliki asumsi variabel respon berdistribusi Poisson dan equidispersi. Apabila asumsi equidispersi tidak terpenuhi dan terjadi excess zero maka regresi Poisson tergeneralisasi zero-inflated dapat digunakan. Selanjutnya untuk data berhirarki dan *cluster* yang memperhatikan variasi dan korelasi antar level maka pemodelan multilevel merupakan solusinya.

Tahapan analisis multilevel regresi Poisson tergeneralisasi zero-inflated adalah estimasi parameter dengan algoritma EM, estimasi komponen varians, uji kelayakan model dengan uji rasio likelihood, uji signifikansi parameter dengan menggunakan uji Wald dan pemilihan model terbaik menggunakan kriteria AIC. Data yang digunakan adalah data kematian akibat demam berdarah Dengue (DBD).

Kata kunci: regresi Poisson, equidispersi, excess zero, regresi Poisson tergeneralisasi zero-inflated, pemodelan multilevel, algoritma EM, uji rasio likelihood, uji Wald, AIC.

ABSTRACT

MULTILEVEL ZERO-INFLATED GENERALIZED POISSON REGRESSION MODELING

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Poisson regression analysis is a non-linear regression which assumes that a independent variable has Poisson distribution and equidispersion. If equidispersion assumptions are not fulfilled and there is excess zero, it means that zero-inflated generalized Poisson regression can be used. Furthermore, a multilevel modeling is the solution for hierarchical and cluster data which take into account the variation and the correlation between level.

The analysis step of multilevel zero-inflated generalized Poisson regression is parameters estimation with EM algorithm, variance components estimation, feasibility testing model with likelihood ratio testing, significance parameter testing by using Wald testing and the best selection model by using AIC criteria. The number of deaths caused by dengue hemorrhagic fever (DHF) are used as the data.

Keywords: Poisson regression, equidispersion, excess zero, zero-inflated generalized Poisson regression, multilevel modeling, EM algorithm, likelihood ratio test, Wald test, AIC.