ABSTRAK

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Judul : **Pendekatan *Exponential Better than Used in increasing Convex in Laplace transform order* (EBUCL) dalam Analisis Survival Data Asimetris di Bidang Demografi**

Usia menikah pertama merupakan indikator penting dalam kajian demografi karena berkaitan dengan dinamika sosial dan kependudukan. Penelitian ini bertujuan untuk menganalisis pola usia menikah pertama di Kabupaten Tasikmalaya dan Kota Bandung, menguji kesesuaian distribusi data menggunakan pendekatan *Exponential Better than Used in Increasing Convex in Laplace Transform Order* (EBUCL), mengidentifikasi faktor-faktor yang memengaruhi menggunakan model *Cox Proportional Hazards* (CPH), serta membandingkan pola survival menggunakan model *Accelerated Failure Time* (AFT). Metode yang digunakan meliputi estimasi Kaplan-Meier, uji EBUCL, serta pemodelan CPH dan AFT dengan pemilihan model terbaik berdasarkan *Akaike Information Criterion* (AIC). Data yang dianalisis terdiri dari 1.826 individu di Kabupaten Tasikmalaya dan 1.761 individu di Kota Bandung. Hasil penelitian menunjukkan bahwa data pada kedua wilayah tidak mengikuti distribusi eksponensial, yang ditunjukkan oleh nilai statistik uji EBUCL sebesar 26,3586 untuk Kabupaten Tasikmalaya dan 26,3591 untuk Kota Bandung, sehingga termasuk dalam kelas distribusi EBUCL. Hasil model CPH menunjukkan bahwa jenis kelamin dan pendidikan berpengaruh signifikan terhadap usia menikah pertama, sedangkan pekerjaan tidak berpengaruh signifikan. Laki-laki memiliki hazard ratio sebesar 0,331 di Kabupaten Tasikmalaya dan 0,567 di Kota Bandung dibandingkan perempuan. Distribusi log-logistik merupakan model AFT terbaik dengan nilai AIC sebesar 9624,47 di Kabupaten Tasikmalaya dan 9806,412 di Kota Bandung. Hasil model AFT menunjukkan bahwa perempuan cenderung menikah lebih cepat, dengan faktor percepatan sebesar 0,794 di Kabupaten Tasikmalaya dan 0,876 di Kota Bandung. Selain itu, usia menikah pertama di Kabupaten Tasikmalaya cenderung lebih muda dibandingkan Kota Bandung.

Kata kunci: Analisis Survival, Usia Menikah Pertama, *Exponential Better than Used in Increasing Convex in Laplace Transform Order* (EBUCL), *Cox Proportional Hazards* (CPH), *Accelerated Failure Time* (AFT)

ABSTRACT

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Title ***: The Exponential Better Than Used in Increasing Convex in Laplace Transform Order (EBUCL) Approach in Survival Analysis of Asymmetric Data in Demography***

Age at first marriage is an important indicator in demographic studies because it reflects social and population dynamics. This study aims to analyze the survival pattern of age at first marriage in Tasikmalaya Regency and Bandung City, examine the suitability of the data distribution using the Exponential Better than Used in Increasing Convex in Laplace Transform Order (EBUCL) approach, identify influencing factors using the Cox Proportional Hazards (CPH) model, and compare survival patterns using the Accelerated Failure Time (AFT) model. The methods employed include Kaplan–Meier estimation, the EBUCL test, and CPH and AFT modeling, with the best model selected based on the Akaike Information Criterion (AIC). The data consisted of 1,826 individuals from Tasikmalaya Regency and 1,761 individuals from Bandung City. The EBUCL test results showed that the data did not follow an exponential distribution, with test statistics of 26.3586 and 26.3591, respectively, indicating membership in the EBUCL class. The CPH model revealed that gender and education significantly affected age at first marriage, whereas employment status was not significant. Males had hazard ratios of 0.331 in Tasikmalaya Regency and 0.567 in Bandung City relative to females. The log-logistic distribution was identified as the best AFT model, with AIC values of 9624.47 and 9806.412, respectively. The AFT results indicated that females tended to marry earlier, with acceleration factors of 0.794 and 0.876. Overall, age at first marriage in Tasikmalaya Regency tended to be younger than in Bandung City.

Keywords: *Survival Analysis, Age at First Marriage, Exponential Better than Used in Increasing Convex in Laplace Transform Order (EBUCL), Cox Proportional Hazards (CPH), Accelerated Failure Time (AFT).*