

E. S. USOLTSEVA

Parametric and Nonparametric Estimators in AFTM under Measurement Error

National T. Shevchenko University of Kyiv, Ukraine

E-mail: elena_usolceva@ukr.net

We introduce Accelerated Failure Time Model (AFTM) from Survival Analysis: $T_i = \exp\{\beta_0 + \beta^T \mathbf{X}_i + \varepsilon_i\}$, $i \geq 1$, where ε_i are i.i.d. with zero mean. We observe surrogate data $\mathbf{W}_i = \mathbf{X}_i + \mathbf{U}_i$, where \mathbf{U}_i is a measurement error. Vector of parameters $\beta = (\beta_0, \beta_{\mathbf{X}}^T)^T$ is estimated. Instead of lifetimes T_i we observe such random variables $Y_i = \min\{T_i, C_i\}$, $\Delta_i = I\{T_i \leq C_i\}$. The estimator of parameter vector β is based on the i.i.d. sample of $(Y_i, \mathbf{W}_i, \Delta_i)$, $i = \overline{1, n}$.

In the parametric case we consider a sample from AFTM, such that ε_i are logistic distributed, censors C_i , $i = \overline{1, n}$ are lognormal distributed. Joined adjusted estimating function are constructed in the parametric case.

In the nonparametric case we introduce consistent estimator for parameter vector under censoring and measurement error.

- [1] T. Augustin, *Habilitations-Schrift.*, Universitat Munchen, 2002.
- [2] A. Foldes, L. Rejto, *The Annals of Statistics*, **9**, (1981), N 1, 122–129.