ASYMPTOTIC PROPERTIES OF MOMENT-DENSITY

AND MOMENT-TYPE CDF ESTIMATORS IN THE

MODELS WITH WEIGHTED OBSERVATIONS

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In this talk we consider the nonparametric estimation problem of pdf and cdf in the models when the samples are drawn form the weighted distribution

$$\frac{w(x)\,f(x)}{W}, \qquad \text{where} \qquad W = \int w(x)\,dF(x).$$

The so-called limiting total life time and limiting excess life time distributions in the renewal theory represent two spacial cases of the weighted distribution with $w(x) = x$ and $w(x) = (1 - F(x)/f(x)$, respectively.

We will present the construction of the so-called moment-density and moment-type cdf estimators in these two models. The construction is based on the solution of the Stieltjes moment problem. The asymptotic properties such as MSE and Normality of the proposed estimators are established and it is shown that MSE are optimal in both cases.