Kernel estimates of hazard function

Abstract

This doctoral dissertation is devoted to methods for analysis of censored data in survival analysis. The main attention is focused on the hazard function that reflects the instantaneous probability of the event occurrence within the next time instant. The thesis introduces two approaches for a kernel estimation of this function. In practice, the hazard function can be affected by other variables. The most frequently used model suggested by D. R. Cox is presented and moreover two types of kernel estimates to estimate a conditional hazard function are proposed. For kernel estimates, there is derived some statistical properties and proposed methods of bandwidths selection. The part of the thesis is extensive simulation study where theoretical results are verified and the proposed methods are compared. The last chapter of the thesis is devoted to an analysis of real data sets obtained from different fields.