

The concern of this thesis is parameter estimation in regression models in survival analysis, particularly in case-cohort studies. In case-cohort studies, observations are sampled to form a subcohort which is followed and analysed. As a result, the cost of performing such studies is reduced but standard procedures for parameter estimation need to be modified. This is usually done by incorporating weights into the estimating equations so that individual sampling probabilities are accounted for. In this thesis we show that this method can lead to biased estimators when the subcohort sampling probability is low and suggest an alternative estimator based on logistic regression.