

This thesis is devoted to the derivation of various types of confidence intervals for ratios of mean values. The inspiration for this work is applying the acquired theoretical knowledge to the problem of waste sorting, such as estimating the weight of the unsorted waste components concerning the total weight of the mixture. Firstly, the confidence intervals based on the standard asymptotic inference are derived, such as the standard asymptotic confidence interval and the interval estimate derived using the logit transformation. Furthermore, the thesis introduces the bootstrap method, which leads to the derivation of the basic, percentile, and studentized bootstrap confidence interval. Finally, the end of the thesis explores the properties of these interval estimates using two simulation models.