In this thesis we deal with the estimation of population totals with the use of auxiliary information. We describe the generalized regression estimator and assumptions of its asymptotic normality. We also describe calibration estimators and mention their asymptotic equivalence to the generalized regression estimator. We apply our obtained conclusions to data from the RADIOPROJEKT and we compare our results with results obtained by companies that worked on this project. Finally, we compare observed coverage probabilities of confidence intervals for population total based on the theory described in this thesis and also on methods used by the companies.