The thesis concerns with effect of covariate measurement error on the least squares estimators and tests of importance of parameters in regression models. It refers to unsatisfied assumptions of linear model when using measurement error covariates and resulting effect on estimates and tests in regression models. It focuses mainly on investigation of consistence of estimates of linear and quadratic coeficient in additive and multiplicative model with one covariate with homoscedastic and heteroscedastic measurement error. In the final chapter teoretical results are grounded by simulation study.