

Abstract: This thesis discusses varying coefficient models with focus on statistical inference. The main idea of these models is the use of regression coefficients varying over some effect modifier instead of constant coefficients of classical linear regression. First, we define these models and their estimation procedures, which have been published in several variants to date. Local regression or different spline types - smoothing, polynomial or penalized, can be used to estimate these models. From the estimation method, we also derive the given statistical inference, to which we refer deduced bias, variance, asymptotic normality, confidence bands, and hypothesis testing. The main aim of our work is to summarize the selected methods and their inference. Finally, a procedure for variable selection is proposed.