Testing in Nonparametric Varying Coefficient Additive Models

by

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Abstract

In this paper we consider the problem of testing for a general parametric form against a nonparametric alternative for a coefficient function in a varying coefficient multivariate regression model. We propose a test statistic and derive its asymptotic null and alternative distributions. We analyze the asymptotic power of the test in shrinking neighborhoods of the null hypothesis, and show that the test is asymptotically optimal. These theoretical results are derived under the fairly general condition of absolute regularity (β -mixing) for the predictor variables. We give numerical results that support the theory. We also illustrate usefulness of the method through an application to a body fat dataset where we build a simple, yet accurate, model that predicts well individual body fat values.

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