

Nonparametric smoothing in modeling logistic regression

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Abstract

This paper is emphasized on the logistic regression model fit with continuous and categorical covariates. A test statistic based on non-parametric local linear regression technique with optimal bandwidth which is chosen by cross validation method is proposed. This proposed test does not require a space partition of covariates or groups of the fitted values to compensate a small expected cell size. The expectation and variance of the proposed test statistic are computed and the sampling distributions of test statistic for various of logistic regression models are evaluated. We use simulations to compare the power of the new test with that of the current assessing methods for different logistic models. The proposed method is illustrated by using data from Caplehorn (1991) for the heroin addicts.

Keywords : *Cross-validation, cusum, local linear smoother, variable bandwidth.*

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