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Testing the Goodness-of-Fit of Logistic Models Based on Local Linear Smoothing

Kuo-Chin Lin
Tainan Woman's College of Arts & Technology, R.O.C.

Yi-Ju Chen
Tamkang University, R.O.C.

Abstract

For logistic regression models, a new test statistic for testing $H_0 : \pi(x) = \pi_0(x)$ based on nonparametric local linear regression technique is proposed. Smoothing methods can be used to define a goodness-of-fit test that does not suffer from the drawbacks of current goodness-of-fit methods for logistic models. The motivation of applying local smoother is explained. Mean and variance of the proposed test statistic are given in explicit expression. The properties of the test statistic are also discussed by simulation.

Keywords: Binary Data, Goodness-of-Fit, Cross-Validation, Local Linear Smoother, Logistic Regression.