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Title	TESTING HETEROSCEDASTICITY FOR REGRESSION MODELS BASED ON PROJECTIONS
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not involve the product of p indictor functions. Escanciano (2006) and Lavergne and Patilea (2008, 2012) also adopted this approach to construct goodness-of-fit tests for parametric regression models. As the test is based on one-dimensional projections, it behaves as if the dimension of covariates was one. Thus this method is less sensitive to the dimension p of the regressors than that in Zhu, Fujikoshi and Naito (2001). On the other hand, we also use residual marked empirical process to construct the test statistic. Thus our test statistic avoids nonparametric estimation of $E(\cdot|\cdot)$ as used in Zheng (2009) and can detect local alternatives converging to the null at the parametric rate $1/\sqrt{n}$. Besides, the new test is easy to compute, does not involve multidimensional numerical integrations, and presents an excellent power performance for large dimension in finite sample simulations, see Section 4.

We also use this method to check heteroscedasticity in partial linear regression models. When the dimension of covariate is large, nonparametric estimation is inaccurate due to the "curse of dimensionality", and partial linear regression models provide a more flexible substitution if the prior knowledge that some of the covariates enter the regression model linearly. Thus this model is widely used in economics, biology and other related areas. To construct the test statistic for partial linear regression models, we need to use locally smoothing methods to estimate the nonlinear part of the regression function. Although it involves nonparametric estimators, we will show that the limiting distribution has the same for-