

Schott, James R.

Determining the dimensionality in sliced inverse regression. (English) Zbl 0791.62069
J. Am. Stat. Assoc. 89, No. 425, 141-148 (1994).

Summary: A general regression problem is one in which a response variable can be expressed as some function of one or more different linear combinations of a set of explanatory variables as well as a random error term. Sliced inverse regression is a method for determining these linear combinations. We address the problem of determining how many linear combinations are involved. Procedures based on conditional means and conditional covariance matrices, as well as a procedure combining the two approaches, are considered. In each case we develop a test that has an asymptotic chi-squared distribution when the vector of explanatory variables is sampled from an elliptically symmetric distribution.

MSC:

[62J02](#) General nonlinear regression
[62J99](#) Linear inference, regression
[62H15](#) Hypothesis testing in multivariate analysis
[62J05](#) Linear regression; mixed models
[62F03](#) Parametric hypothesis testing
[62E20](#) Asymptotic distribution theory in statistics

Cited in **48** Documents

Keywords:

eigenprojection; projection matrix; linear combinations of explanatory variables; sliced inverse regression; general regression problem; response variable; conditional means; conditional covariance matrices; asymptotic chi-squared distribution; elliptically symmetric distribution

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