

Estimation and Testing of Varying Coefficients in Quantile Regression

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In this paper, we establish the connection between the null hypothesis $H_0 : C^T \beta_0 = c_0$ and a dimension-reduced structure for varying coefficient models in quantile regression. Under the dimension-reduced model, B-spline approximation is used. We reveals that the null hypothesis $H_0 : C^T \beta_0 = c_0$ implies an uni-dimensional structure of a transformed coefficient matrix of B-spline bases. By testing the uni-dimensional structure, we alleviate the difficulty of testing such hypotheses commonly considered in varying coefficient models.

Key Words: Dimension reduction; Hypothesis testing; Quantile regression; Singular value decomposition.