

部分线性变系数模型的Profile Lagrange乘子检验

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摘要 对于部分线性变系数模型附有约束条件时的估计与检验问题,基于Profile最小二乘方法给出了参数部分以及非参数部分的约束估计并研究了它们的渐近性质,并针对约束条件构造了Profile Lagrange乘子检验统计量,证明了该统计量在原假设下的渐近分布为 χ^2 分布,从而将Lagrange乘子检验方法推广到了半参数模型上.

关键词 [部分线性变系数模型](#), [约束估计](#), [Profile Lagrange乘子检验](#), [Profile最小二乘估计](#).

分类号 [62J02](#), [62G05](#), [62G10](#)

Profile Lagrange Multiplier Test for Partially Linear Varying-Coefficient Regression Models

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Abstract The estimation and testing of partially linear varying-coefficient models under additional linear restriction on parametric component are considered. The constrained estimator for parametric and nonparametric components is established based on Profile least-squares approach, and its asymptotic property is given. For the testing problem, a Profile Lagrange multiplier test statistic is established on the basis of the constrained Profile least-squares estimation. It is proven that the Profile Lagrange multiplier test statistic is asymptotically distribution-free and following χ^2 distribution under the null hypothesis. Finally, the Lagrange multiplier test is successfully applied to semi-parametric models.

Key words [Partially linear varying-coefficient model](#) [constrained estimators](#) [Profile Lagrange multiplier test](#) [Profile least-squares estimation](#).

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