变系数线性EV模型参数的调整加权最小二乘估计及其渐近性质

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摘要　　研究当结构关系EV (errors-in-variables) 模型的系数随某个实变量变化时,如何估计其系数,以及估计的性质如何. 采用调整的加权最小二乘方法估计结构关系EV模型的变系数,证明在比较弱的条件下用这种方法得到的估计具有强相合性和渐近正态性, 模拟研究表明所提估计性质良好.

ADJUST WEIGHTED LS ESTIMATION FOR THE PARAMETER IN THE VARYING COEFFICIENTS LINEAR EV MODEL

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Abstract It is well known that the regression coefficients are considered to be constant in the liner errors-in-variables (EV) model. In many applications, however, the coefficients may be varying with a covariate, such as time, temperature and so on. This paper gives such examples, and introduces how to estimate the coefficients when the coefficients are varying with a covariate in the structural linear EV model. Under the identification of cov-variance matrix of measurements error is known, we propose the adjust weighted LS estimators (AWLSE) for the estimated parameters of varying regression coefficients as well as the variance of model error. It is shown that the AWLSEs are strongly consistent and asymptotically normal under some mild conditions. Simulations illustrate our AWLSEs have good performance.

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