

Title : An Estimation of a Joined Point in Tobit-Piecewise Regression Model

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ABSTRACT

The objective of this study is to introduce estimation method of a joined point in Tobit-piecewise regression model which is first constructed in Mekbunditkul (2010). The factored likelihood method applied on TP model makes possible parameter estimation such as TP estimator which retains good properties of a MLE, e.g. consistency and best asymptotically normal (B.A.N). There are two interested foundations, in this research, introduced to estimate the unknown joined point in Tobit-piecewise model in the case that observed data contain outliers. Those estimators are obtained under the maximum likelihood method, for example Quandt's method and under the nonlinear least square method, namely Levenberg-Marquardt method. The numerical analysis and simulation study are provided to compare the potential applicability of each estimator considered in terms of the average sum of squares of residual (ASSR) and relative efficiency (RE). It is found that Tobit-piecewise regression model with the joined point estimated by nonlinear LS method yields non-significant smaller ASSR than by ML method in every situation. In addition, for this particular case, Tobit-piecewise estimator is the best among all four different estimators.