

A Reaction Function Model With The First Order Statistic

Ji Tao
School of Economics
Shanghai U of Finance and Economics
ji.tao@mail.shufe.edu.cn

Lung-fei Lee
Department of Economics
The Ohio State University
lee.1777@osu.edu

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Abstract

This paper introduces a reaction function econometric model with the first order statistic to modeling peer effects. We show that the model is a well-defined system of equations. Identification conditions are discussed for model parameters. The maximum likelihood estimator is consistent and asymptotically normal under the i.i.d. normality assumption. We extend the reaction function model to include group effects and consider different maximum likelihood estimators under various model specifications. Instrumental variables estimators are proposed for the model that includes exogenous regressors. Distribution free methods that use recurrence relations to generate moment conditions for estimation are also considered. We apply the reaction function model to the Chinese airfare dataset and find that airlines react positively and significantly to the lowest airfare of their competitors.

JEL classification: C13; C23

Keywords: Reaction function, First order statistic, Maximum likelihood estimation, Distribution free estimation, Recurrence relation.