ABSTRACT

EMPIRICAL APPLICATIONS OF THE LOCAL LIKELIHOOD METHOD

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In the econometrics literature, nonparametric estimation is relatively an emerging field with more research being directed towards developing more versatile and precise estimators. The main focus of my thesis is to implement the Local Maximum Likelihood (LML) to address empirical issues in finance and labour economics.

The first chapter of the thesis compares the performance of several nonparametric estimators in dynamic Capital Asset Pricing Model (CAPM) framework. The simulations show that the choice of estimator matters in testing the validity of the CAPM. However, empirically the validity of the CAPM is rejected for all the competing estimators.

The second chapter investigates the potential gains from estimating the treatment effect with the propensity score matching by relaxing the functional form assumptions of the parametric binary response models. The LML estimator is adapted to obtain nonparametric estimates of the propensity scores. Exhaustive simulation analysis show that the efficiency of the estimated treatment effect can be increased with nonparametric estimation. Furthermore, the empirical analysis of the experimental data shows that nonparametrically estimated propensity scores are more effective in eliminating selection bias.

The final chapter estimates the private rate of return to training in Canada using an internal rate of return approach. The production and the cost functions of the firms are estimated by addressing the issues of endogeneity of inputs including human capital and unobservable firm heterogeneity with the system-GMM estimation. The findings of this chaper show that the formal training has a significant impact on productivity. The estimated rate of return to formal training is large and heterogeneous across the firms.