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Ming He

Curriculum Vitae

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EDUCATION

Ph.D. in Economics, University of Washington, 2016 (Expected)

Dissertation: “Identification, Estimation, and Applications in Structural Analysis of Auction Models”

References: Yanqin Fan (Chair), Emmanuel Guerre, Kuan-Pin Lin, Gregory Ellis

M.S. in Economics, Vanderbilt University, 2013

M.S. in Economics, Portland State University, 2011

B.S. in Environmental Science, People’s University of China, 2007

RESEARCH FIELDS

Econometrics, Applied Microeconomics, Empirical Industrial Organization

PUBLICATIONS

- [1] “Locally Adjusted LM Test for Spatial Dependence in Fixed Effects Panel Data Models,” with Kuan-Pin Lin, *Economics Letters* 121, 59-63, 2013.
- [2] “Testing Spatial Effects and Random Effects in a Nested Panel Data Model,” with Kuan-Pin Lin, *Economics Letters* 135, 85-91, 2015.

WORKING PAPERS

- [1] “Nonparametric Identification of Pure Common Value Auction Models with an Application to U.S. OCS Wildcat Auctions,” (Job Market Paper), 2015.
- [2] “A Sensitivity Analysis in the Affiliated Private Value Auction Model with Incomplete Sets of Bids,” with Yanqin Fan and Tong Li, 2015.
- [3] “Smoothed Q-learning Estimator and Inference in Dynamic Treatment Regimes,” with Yanqin Fan and Liangjun Su, 2015.
- [4] “Testing Random Effects Panel Data Models with Spatially Lagged Dependent Variable and Spatially Correlated Error Components,” with Kuan-Pin Lin, 2012.

WORK IN PROGRESS

- [1] “First-Price Auction with Both Common-Value and Private-Value Bidders.”
- [2] “A Nonparametric Approach to the First-Stage Q Function in Dynamic Treatment Regimes.”

SEMINARS AND CONFERENCE PRESENTATIONS

- 2015 11th World Congress of the Econometric Society (Montreal)
 - Canadian Econometric Study Group Meetings (Guelph)
 - 2nd Seattle-Vancouver Econometrics Conference (Vancouver)
 - Causal Inference Working Group (Biostats, University of Washington)
 - NPI Brownbag Seminar (Economics, University of Washington)
- 2013 VIIth World Conference of Spatial Econometric Association (Washington, D.C.)
- 2011 IVth World Conference of Spatial Econometric Association (Toulouse)
 - 6th Washington University Graduate Student Conference (St. Louis)

RESEARCH AND TEACHING EXPERIENCE

- Research Assistant for Prof. Yanqin Fan Fall 2015
- Instructor**
- Introduction to Macroeconomics Spring 2015
- Statistics for Business and Economics Summer 2014
- Teaching Assistant**
- Econometrics II (Ph.D.) Fall 2015
- Introduction to Econometrics Fall 2014, Winter 2015
- Computational Finance and Financial Econometrics Summer 2014
- Industrial Organization Spring 2012

AWARDS AND GRANTS

- 11th World Congress of the Econometric Society Travel Grant (2015)
- Grover and Creta Ensley Fellowship, University of Washington (2013, 2015)
- Graduate Student Travel Grant, Vanderbilt University (2011, 2013)
- Linda Hamilton Award for Outstanding Accomplishment in Economics, Portland State University (2011)

PROFESSIONAL ACTIVITY

Referee for *Journal of Econometrics*, *Economics Bulletin*

Member of *American Economic Association*, *Econometric Society*, *Institute of Mathematical Statistics*

REFERENCES

Yanqin Fan (Chair)

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Kuan-Pin Lin

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ABSTRACTS OF SELECTED WORKING PAPERS

- [1] Nonparametric Identification and Estimation of Pure Common Value Auction Models with Application to U.S. OCS Wildcat Auctions, (Job Market Paper), 2015.

Although pure common value auction models have broad applicability in empirical analysis, nonparametric identification and structural estimation remain challenging in these contexts. In this paper, we establish novel identification results for both the first-price and the second-price sealed-bid auction models in the pure common value framework. We show that the joint distribution of private signals, the seller's expected profit, and the bidders' expected surplus under any reserve price are identified in a general nonparametric class. Moreover, we establish nonparametric identification of the joint distribution of private signals in a second-price sealed-bid auction model with both common-value bidders and private-value bidders. For the pure common value auction models, we propose a semiparametric estimation method and establish consistency of the estimator. Results from a Monte Carlo experiment reveal good finite sample performance of our estimator. Finally, we employ this new approach to analyze data from U.S. OCS

wildcat auctions. We show that if the U.S. government had set reserve prices optimally in these auctions using the econometric method proposed in this paper, it would have increased its revenue by 15%, or 246 million dollars.

- [2] A Sensitivity Analysis in the Affiliated Private Value Auction Model with Incomplete Sets of Bids, with Yanqin Fan and Tong Li, 2015.

In a first-price sealed-bid auction, Athey and Haile (2002) have shown that the affiliated private value (APV) model is not nonparametrically identified with incomplete sets of bids. In this paper, we further address this identification issue. In the simple case with symmetric bidders and non-binding reserve price, we establish identification or partial identification results in two scenarios of practical interest. First, when the two highest bids are observed, we achieve identification of the joint distribution function of private values by assuming the copula function of private values to be an Archimedean copula with weak requirement. Second, when only the highest bid is observed, we establish partial identification for the quantile function of private value and several policy parameters by parameterizing the copula function. Further, we extend our identification/partial identification results to the cases with symmetric bidders and/or binding reserve price. We also extend our identification/partial identification results to the second-price sealed-bid auction.

- [3] A Smoothed Q-learning Algorithm for Estimating Optimal Dynamic Treatment Regimes, with Yanqin Fan and Liangjun Su, 2015.

In this paper we propose a smoothed Q-learning algorithm for estimating optimal dynamic treatment regimes. In contrast to the Q-learning algorithm in which non-regular inference is involved, we show that under assumptions adopted in this paper, the smoothed Q-learning estimator is asymptotically normally distributed and its asymptotic variance can be consistently estimated. As a result, inference based on the smoothed Q-learning estimator is standard. We derive the optimal smoothing parameter and propose a data-driven method for choosing it. The finite sample properties of the Q-learning estimator are studied and compared with several existing estimators including the Q-learning estimator via an extensive simulation study.