

# Huihui Li

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## Academic Positions

Xiamen University, School of Economics & Wang Yanan Institute for Studies in Economics  
Assistant Professor, 2016–Present

## Education

Ph.D. in Economics, Pennsylvania State University, 2016  
Dissertation Title: “Nonparametric Identification and Estimation of  $k$ -Double Auctions”  
M.A. in Economics, Peking University, 2010  
B.A. in Economics & B.S. in Statistics, Peking University, 2007

## Research Interests

Econometrics, Industrial Organization, Applied Microeconomics

## Publications

1. Han, Xinxin, Huihui Li, Yi-Lang Tang, Judith Palfrey, and Jiming Zhu (2022). “The Association of State-level Drug and Opioid Overdose Deaths with the Capacity of Behavioural Health Professionals in the United States.” *Health and Social Care in the Community*, 30(6), e4585–e4593.
2. Chu, Chia-Shang J., Tianyi Wang, and Huihui Li (2011). “China’s Macroeconomic Stability: An Empirical Study based on Survey Data.” *China Economic Journal*, 4(1), 43–64.
3. Li, Huihui (2009). “Catastrophic Risk Management in China: Experience and Development.” *Economic and Social Development*, 7(11), 25–28. (Chinese)
4. Li, Huihui, Jiazi Guo, Ting Han, and Yunbo Liu (2006). “Empirical Study on Performance Evaluation of Property Insurance Companies in China.” *Risk Management and Economic Safety: Viewpoint of Finance and Insurance Industries. Proceedings of CCISSR 2006 Conference*, 62–82. (Chinese)

## Working Papers

5. Li, Huihui and Nianqing Liu. “Nonparametric Identification and Estimation of Double Auctions with Bargaining.” (Revise and resubmit to *Econometric Theory*)

This paper studies the nonparametric identification and estimation of double auctions with one buyer and one seller. This model assumes that both bidders submit their own sealed bids, and the transaction price is determined by a weighted average between the submitted bids when the buyer’s offer is higher than the seller’s ask. It captures the bargaining process between two parties. Working within this double auction model, we first establish the nonparametric identification of both the buyer’s and the seller’s private value distributions in two bid data scenarios; from the case of all bids being available, to the case of only transacted bids being available. Specifically, both private value distributions

are point identified when all of the bids are observed. They are, however, partially identified when only the transacted bids are available. A sharp characterization of the identified set is provided in the latter case. Second, we estimate double auctions with bargaining using a two-step procedure that incorporates both boundary and interior bias correction. We then show that our value density estimators achieve the optimal uniform convergence rate of first-price auctions. Monte Carlo experiments show that, in finite samples, our estimation procedure works well on the whole support and significantly reduces the large bias of an estimator without bias correction in both boundary and interior regions.

6. Li, Huihui and Kai Li. “Offline Size and Online Scale: A Tale of Two Platforms.” (Submitted)

The online market operates through one of two possible business models: the reseller or the marketplace. Our study is motivated by the fact that the relative scale of the reseller to the marketplace is typically larger in developed countries, such as the United States, than in developing countries, such as China. We propose a novel explanation for this online scale difference, linking it to an offline determinant: the firm size distribution. Specifically, revenue-sharing, which is commonly adopted by a marketplace to attract firms to sell through it, is more favorable to smaller firms than the retail pricing mechanism used by a reseller. Thus, the relative scale of the marketplace to the reseller tends to be larger in developing countries, where the offline firm size distribution is skewed towards smaller firms. Our study offers a tractable framework that explains how the online platform scale is related to the offline firm size distribution.

7. Shen, Lijun, Huihui Li, Jiming Zhu, et al. “Mental Health Professionals in China from 2017 to 2019: More Educated, Better Paid, But Less Satisfied.” (Submitted)

The shortage of mental health professionals has been a global issue, and the importance of job satisfaction to lower turnover and higher productivity cannot be overstated. However, no research has been carried out on the development of job satisfaction over time and its associated factors in China. This study specifically examined the dynamics of mental health professionals’ job satisfaction. Two cross-sectional surveys were conducted nationwide in 2017 and 2019. A total of 25,824 mental health professionals working in tertiary psychiatric hospitals participated in this study. Job satisfaction was assessed using the Minnesota Satisfaction Questionnaire-Short Form (MSQ-SF). Sociodemographic and job-related characteristics were collected. Multiple linear regression analyses were performed, including hospital fixed effects. It was found that job satisfaction score decreased significantly from 2017 to 2019. Compared with the year 2017, more participants in 2019 had a bachelor’s degree or above and earned more than 8,000 per month; however, more mental health professionals worked overtime and encountered medical disputes. Longer working days per week, and having experienced medical disputes had a significantly and consistently negative influence on job satisfaction.

8. Zhu, Jiming, Haiyu Pang, Huihui Li, et al. “Female Urinary Incontinence in China after 15 Years’ Efforts: Results from Large-scale Nationwide Surveys.” (Submitted)

China has made great achievements in reducing maternal mortality, while improving their quality of life remains a long journey ahead. Urinary incontinence (UI), a disease that quietly but seriously affects women’s health, is such a global burden but often neglected. The research is based on three nationwide investigations: a national cross-sectional survey in 2021, involving 54,346 women aged  $\geq 20$  years, using a complex multistage stratified sampling method; another nationwide cross-sectional survey in 2006; the data regarding the institutions and physicians providing pelvic floor rehabilitation services from 2005 to 2020. The weighted prevalence of female UI and its subtypes were estimated as primary outcomes. Knowledge, attitude and care-seeking behaviour of UI were evaluated. The weighted prevalence of female UI was 16.0%. The prevalence of all UI subtypes decreased from 2006 to 2021; SUI was still the predominant subtype in 2021, followed by MUI and UUI. The estimated absolute number of UI among Chinese women aged  $\geq 20$  years was 85.8 million in 2021; 48% of women with UI were aware that UI was a medical condition, but only 10.1% of them sought care. After 15 years’ development, there were 8,400 pelvic floor rehabilitation institutions and nearly 10,000 relevant physicians—they were found to be associated with the UI prevalence.

9. Çelen, Boğaçhan, Sen Geng, and Huihui Li. “Belief Error and Non-Bayesian Social Learning: Experimental Evidence.”

This paper experimentally studies whether individuals hold a first-order belief that others apply Bayes’ rule to incorporate private information into their beliefs, which is a fundamental assumption in many Bayesian and non-Bayesian social learning models. We design a novel experimental setting in which the first-order belief assumption implies that

social information is equivalent to private information. Our main finding is that participants' reported reservation prices of social information are significantly lower than those of private information, which provides evidence that casts doubt on the first-order belief assumption. We also build a novel belief error model in which participants form a random posterior belief with a Bayesian posterior belief kernel to explain the experimental findings. A structural estimation of the model suggests that participants' sophisticated consideration of others' belief error and their exaggeration of the error both contribute to the difference in reservation prices.

10. Li, Huihui. "Nonparametric Identification of  $k$ -Double Auctions using Price Data."

This paper studies the model identification problem of  $k$ -double auctions between one buyer and one seller when the transaction price, rather than the traders' bids, can be observed. Given that only the price data is available, I explore an identification strategy that utilizes the double auctions with extreme pricing weight ( $k = 1$  or  $0$ ) and exclusive covariates that shift only one trader's value distribution to identify both the buyer's and the seller's value distributions nonparametrically. First, as each exclusive covariate can take at least two values, the buyer's and the seller's value distributions are partially identified from the price distribution for  $k = 1$  or  $k = 0$ . The identified set is sharp and can be easily computed. I provide a set of sufficient conditions under which the traders' value distributions are point identified. Second, when the exclusive covariates are continuous, it is shown that the buyer's and the seller's value distributions will be uniquely determined by a partial differential equation that only depends on the price distribution, provided that the value distributions are known for at least one value of the exclusive covariates.

11. Li, Huihui. "Uniform Consistency of a Boundary Corrected Kernel Density Estimator."

Zhang, Karunamuni, and Jones (1999) proposed a method of boundary correction for kernel density estimation, which is later improved by Karunamuni and Zhang (2008). This method uses the reflection technique involving reflecting a transformation of the data. In this paper, I consider a generalization of Zhang, Karunamuni, and Jones's estimator. The generalized estimator allows one to consistently estimate the density function, not only on a compact support, but also on arbitrary compact subinterval of the support on which the density is continuous but possibly has discontinuity at the endpoints. I establish the uniform consistency of the generalized estimator and show that it has a uniform convergence rate of  $O_p(h^2 + \sqrt{\log n/(nh)})$ , provided that the primary and the secondary bandwidths shrink at proper rates. The potential extension of the estimator in order to correct higher order bias is also discussed in the paper.

## Work in Progress

12. "Semi-nonparametric Estimation of Double Auctions using Price Data."
13. "Costly Observation and Welfare in a Social Learning Environment."
14. "Group Membership Detection in High-Dimensional Panel Data."
15. "Improved Computational Method for Multidimensional Continuous-Choice Dynamic Problems."

## Editorial Service

Referee for *Journal of Econometrics*

## Seminars & Conference Presentations

- 2022 Asian Meeting of the Econometric Society in China
- 2019 Shanghai University of Finance and Economics, Monash/Xiamen Workshop on FEES
- 2018 California Econometrics Conference
- 2017 Shandong University, China Meeting of the Econometric Society, Annual Conference of International Association for Applied Econometrics

2016 Lancaster University, Xiamen University

2015 Midwest Econometrics Group, Canadian Econometric Study Group

2014 European Meeting of the Econometric Society, University of Hong Kong, Shanghai University of Finance and Economics, Renmin University of China

## Teaching

### *Xiamen University (Instructor)*

Advanced Econometrics (Graduate): Fall 2016–2022

Mathematical Statistics (Undergraduate): Spring 2022–2023

Mathematical Economics (Undergraduate): Fall 2016–2017, Spring 2019

Thesis Writing (Undergraduate): Spring 2020–2021

### *Pennsylvania State University (Teaching Assistant)*

Intermediate Econometrics (Undergraduate): Spring 2012, Spring 2015

Economics of Uncertainty (Undergraduate): Fall 2014

Labor Economics (Undergraduate): Spring 2014

Empirical Methods (Graduate): Fall 2012

Introductory Macroeconomics (Undergraduate): Fall 2010, Spring 2011

### *Peking University (Teaching Assistant)*

Managerial Economics (MBA): Fall 2009

Managerial Accounting (MBA): Fall 2009

Marketing in China (MBA): Spring 2009

Fundamentals of Management (MBA): Spring 2009

Corporate Finance (MBA): Fall 2008

## Advising

### *Master Students, as Primary Advisor*

Jiahui Cheng (2020), Wanjun Fu (2020), Kangle Zhu (2020), Angda Li (2021), Xiaohui Wu (2021), Yuxuan, Huang (2022), Shuwei Xu (2022), Yuqin Gan (2023), Xuekun Cheng (2023), Xingquan Zheng (2023).

## Language & Skills

English (fluent), Chinese (native).

MATLAB, Python, Stata, R, C, SAS;  $\LaTeX$ .

Certified China Associate Actuary.