


Max H. Farrell

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Booth School of Business
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Academic Positions

University of Chicago Booth School of Business

Associate Professor of Econometrics and Statistics, 2018 – Present.

Assistant Professor of Econometrics and Statistics, 2014 – 2018.

Education

Ph.D. Economics, University of Michigan, 2014.


M.A. Statistics, University of Michigan, 2012.

S.B. Mathematics, Massachusetts Institute of Technology, 2004.

S.B. Economics, Massachusetts Institute of Technology, 2004.

Teaching

University of Chicago Booth School of Business

Applied Regression Analysis (BUS 41100) [[course page](#) 

University of Michigan

Introduction to Mathematical Statistics (ECON 405)

Graduate Econometric Analysis II (ECON 672, as TA)

Graduate Econometric Analysis I (ECON 671, as TA)


Professional Activities

Associate Editor, *Review of Economics and Statistics*, 2020 – present.

Editorial Board, *American Journal of Political Science*, 2018 – 2019.

Referee for:

Advances in Econometrics, *American Economic Review*, *American Journal of Political Science*, *Annals of Applied Statistics*, *Annals of Statistics*, *Biometrics*, *Biometrika*, *Econometric Reviews*, *Econometric Theory*, *Econometrica*, *Econometrics Journal*, *Economics Letters*, *Entropy*, *Historical Methods*, *Journal of the American Statistical Association*, *Journal of Applied Econometrics*, *Journal of Business & Economic Statistics*, *Journal of Casual Inference*, *Journal of Econometrics*, *Journal of Machine Learning Research*, *Journal of Political Economy*, *Journal of Politics*, *Journal of the Royal Statistical Society Series A & Series B*, *Journal of Statistical Planning and Inference*, *Operations Research*, *Quantitative Economics*, *Quarterly Journal of Economics*, *Review of Economic Studies*, *Review of Economics and Statistics*, *Scandinavian Journal of Statistics*, *Statistica Sinica*, *Statistical Science*, the National Science Foundation, and the European Research Council.

Conference co-organizer, “Interactions: Bringing Together Econometrics and Applied Microeconomics”, University of Chicago, September 15–16, 2017. [[website](#) 

Econometrics and statistics seminar co-organizer, 2017 – present.

Main Publications

1. “Efficient Estimation of the Dose Response Function under Ignorability using Subclassification on the Covariates,” with Matias Cattaneo, in *Advances in Econometrics: Missing-Data Methods*, vol. 27A, ed. by D. Drukker, Emerald Group Publishing, 93–127, December 2011. [[pdf](#)] []
2. “Optimal Convergence Rates, Bahadur Representation, and Asymptotic Normality of Partitioning Estimators,” with Matias Cattaneo, *Journal of Econometrics*, 174(2), 127–143, June 2013. [[pdf](#)] []
3. “Robust Inference on Average Treatment Effects with Possibly More Covariates than Observations,” *Journal of Econometrics*, 189(1), 1–23, November 2015. arXiv:1309.4686. [[pdf](#)] []
4. “On the Effect of Bias Estimation on Coverage Accuracy in Nonparametric Inference,” with Sebastian Calonico and Matias Cattaneo, *Journal of the American Statistical Association*, 113(522), 767–779, 2018. arXiv:1508.02973. [[pdf](#)] []
5. “Regression Discontinuity Designs Using Covariates,” with Sebastian Calonico, Matias Cattaneo, and Rocío Titiunik, *Review of Economics and Statistics*, 101(3), 442–451, 2019. arXiv:1809.03904. [[pdf](#)] []
6. “Characteristic-Sorted Portfolios: Estimation and Inference,” with Matias Cattaneo, Richard Crump, and Ernst Schaumburg, *Review of Economics and Statistics*, forthcoming. arXiv:1809.03584. [[pdf](#)] []
7. “Optimal Bandwidth Choice for Robust Bias Corrected Inference in Regression Discontinuity Designs,” with Sebastian Calonico and Matias Cattaneo, *Econometrics Journal*, forthcoming. arXiv:1809.00236. [[pdf](#)] []
8. “Large Sample Properties of Partitioning-Based Series Estimators,” with Matias Cattaneo and Yingjie Feng, *Annals of Statistics*, forthcoming. arXiv:1804.04916. [[pdf](#)] []

Working Papers

9. “On Binscatter,” with Matias Cattaneo, Richard Crump, and Yingjie Feng, February 2019. arXiv:1902.09608. [[pdf](#)] []
10. “Coverage Error Optimal Confidence Intervals for Local Polynomial Regression,” with Sebastian Calonico and Matias Cattaneo, March 2019. arXiv:1808.01398. [[pdf](#)] []
11. “Deep Neural Networks for Estimation and Inference,” with Tengyuan Liang and Sanjog Misra, September 2019. arXiv:1809.09953. [[pdf](#)] []
12. “Deep Learning Architectures for Individual Heterogeneity,” with Tengyuan Liang and Sanjog Misra.

Publications on Statistical Software

- “**rdrobust**: Software for Regression Discontinuity Designs,” with Sebastian Calonico, Matias Cattaneo, and Rocío Titiunik, *Stata Journal*, 17(2), 372–404, 2017. [[pdf](#)] [[website](#)]
- “**nprobust**: Nonparametric Kernel-Based Estimation and Robust Bias-Corrected Inference,” with Sebastian Calonico and Matias Cattaneo, *Journal of Statistical Software*, 91(8): 1-33, 2019. [[pdf](#)] [[website](#)]
- “**lspartition**: Partitioning-Based Least Squares Regression,” with Matias Cattaneo and Yingjie Feng, *R Journal*, forthcoming. [[pdf](#)] [[website](#)]
- “Binscatter Regressions,” with Matias Cattaneo, Richard Crump, and Yingjie Feng. [[pdf](#)] [[website](#)]

Publications on Public Health & Medicine

- Bryce C. L., C. H. Chang, D. C. Angus, R. M. Arnold, M. H. Farrell, and M. S. Roberts. (2010) “The effect of race, sex and insurance status on time-to-listing decisions for liver transplantation.” *Journal of Transplantation*, vol. 2010, Article ID 467976, 13 pages.
- Benzo R., M. H. Farrell, C. H. Chang, et. al. (2010) “Physical Activity, Health status, Anxiety and Risk of Hospitalization in Patients with Severe Chronic Obstructive Pulmonary Disease,” *Respiration*, 80, 10–18.

- Barnato A.E., C. H. Chang, M. H. Farrell, et. al. (2010) “Is Survival Better at Hospitals with Higher ‘End-of-Life’ Treatment Intensity?,” *Medical Care*, 48, 125–132.
- Barnato A.E., M. H. Farrell, C. H. Chang, et. al. (2009) “Development and validation of measures of hospital ‘end-of-life’ treatment intensity,” *Medical Care*, 47, 1098–1105.
- Benzo R., M. H. Farrell, C. H. Chang, et. al. (2009) “Integrating health status and survival data: the palliative effect of lung volume reduction surgery,” *American Journal of Respiratory and Critical Care Medicine*, 180, 239–246.
- Bryce C. L., D. C. Angus, R. M. Arnold, C. H. Chang, M. H. Farrell, et. al. (2009) “Sociodemographic differences in early access to liver transplantation services.” *American Journal of Transplantation*, 9, 2092–2101.
- Lin C. Y., M. H. Farrell, J. R. Lave, et. al. (2009) “Organizational Determinants of Hospital End-of-Life Treatment Intensity,” *Medical Care*, 47, 524–530.
- Rubio, D. M., K. L. Kraemer, M. H. Farrell, and N. L. Day. (2008) “Factors Associated with Alcohol Use, Depression, and Their Co-occurrence during Pregnancy,” *Alcoholism: Clinical and Experimental Research*, 32, 1543–1551.
- Nader S., N. Morone, J. E. Bost, and M. H. Farrell, (2008) “Prevalence of Urinary Tract Infection in Childhood: A Meta-Analysis,” *The Pediatric Infectious Disease Journal*, 27, 287–375.
- Barnato, A. E., J. E. Bost, M. H. Farrell, J. R. Lave, R. M. Arnold, D. M. Rubio, and D. C. Angus. (2007) “Relationship between staff perceptions of hospital norms and hospital-level end-of-life treatment intensity,” *Journal of Palliative Medicine*, 10, 1093–1100.
- Wu, E. Q., P. Mulani, M. H. Farrell, and D. Sleep. (2007) “Mapping FACT-P and EORTC QLQ-C30 to the EQ-5D Health Utility in Metastatic Hormone-Refractory Prostate Cancer Patients,” *Value in Health*, 10, 408–414.
- Wu, E. Q., R. Ben-Hamadi, H. Birnbaum, M. H. Farrell, J. Spalding, P. Stang, and K. E. Hartmann. (2006) “Lifetime Costs of Patients with Clinically-Detected Uterine Fibroids: An Employer’s Perspective,” *Drug Benefit Trends*, 18, 405–410.
- Hartmann, K. E., H. Birnbaum, R. Ben-Hamadi, E. Q. Wu, M. H. Farrell, et. al. (2006) “Annual costs associated with diagnosis of uterine leiomyomata,” *Obstetrics and Gynecology*, 108, 930–937.

Software Packages

- rdrubust**: Software for Regression Discontinuity Designs, for R and Stata. [[website](#) | [article](#) | paper nos. 5 & 7]
- nprobust**: Kernel-Based Estimation and Robust Bias-Corrected Inference, for R and Stata. [[website](#) | [article](#) | paper nos. 4 & 10]
- lspartition**: Partitioning-Based Least Squares Regression, for R. [[website](#) | [article](#) | paper nos. 2 & 8]
- binsreg**: Binscatter Regressions, for R and Stata. [[website](#) | [article](#) | paper no. 9]

Presentations & Invited Conferences

- 2019**: AI Innovations Forum (UNC Kenan Institute/SAS), UC Berkeley, CEME Conference for Young Econometricians (UCLA), CIREQ Conference on the Bootstrap, Harvard/MIT, Interactions (CEME/NSF), North American Summer Meeting of the Econometric Society (University of Washington), Northwestern University, Princeton Operations Research and Financial Engineering (ORFE) S. S. Wilks Memorial Seminar in Statistics, Stanford University.
- 2018**: Conference of the International Association for Applied Econometrics (Montreal), Inference in Non-standard Problems (CEME/NSF, Duke), UC Irvine, UC Los Angeles, UC San Diego, University of Michigan.
- 2017**: ASSA/AEA Meetings (Chicago), Columbia University, Vanderbilt University.

2016: Advances in Econometrics (University of Michigan), Cowles Foundation, Grinnell College, Iowa State, Inference in Nonstandard Problems (CEME/NSF, Duke), Interactions (CEME/NSF, Northwestern), Joint Statistical Meetings.

2015: CREST Statistics, Interactions (CEME/NSF, University of Chicago), London School of Economics, Ohio State University, Toulouse School of Economics, University of Bristol, University College London, University of Wisconsin.

2014: Boston University, University of Chicago, Chicago Booth, Cornell, Cowles Foundation, Harvard Kennedy School, Interactions (CEME/NSF, University of Chicago), Michigan State University, Northwestern, Princeton, Stanford, UC Los Angeles.

2013 & prior: Advances in Econometrics (Southern Methodist University), Causal Inference in Education Research (University of Michigan), Econometric Society North American Summer Meeting (USC), University of Michigan, Midwest Econometrics Group (Indiana University), Notre Dame.

Awards & Honors

Society for Political Methodology's Best Statistical Software Award, 2017.

John E. Jeuck Faculty Fellow, 2016-2017.

Richard N. Rosett Faculty Fellow, 2015-2016.

Lawrence Klein Fellowship, Summer 2014.

Haber Fellowship, Fall 2013.

Rackham Graduate School Dissertation Fellowship, Winter 2013.

Rackham Graduate School Travel Grant: 2011, 2012, & 2013.

National Institute of Aging Graduate Student Traineeship, UofM Population Studies: 2008 & 2009.

Student Abstract Awardee, *Public Health Symposium*, University of Michigan, 2008.

Prior Work Experience

Analyst - Center for Research on Health Care - Data Center, University of Pittsburgh. 2006-2008.

Analyst - Analysis Group, Inc. 2003, 2004-2005.