



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

Jonathan B. Hill
Professor of Economics
Dept. of Economics
University of North Carolina
Chapel Hill, NC 27599

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March 2022

RESEARCH FIELDS

High Dimensional Econometrics, Econometric Theory, Nonparametrics

RESEARCH INTERESTS

- *Weak Identification Robust Bootstrap Inference*
- *High dimensional limit theory and inference*
- *Nuisance parameter smoothing*
- *Heavy tail robustness* (estimation, inference, asymptotic theory)
- *Extreme value theory* (tail exponent estimation, inference, asymptotic theory)
- *Non-parametric statistics* (tests of functional form, tail dependence and tail-trimming)
- *Asymptotic theory* (weak limit theory for tail and non-tail arrays)
- *Regression model specification* (power-one tests, robust tests)

EDUCATION

Ph.D.: Economics, 2001, University of Colorado-Boulder

B.A.'s: Economics, Sociology and Anthropology, 1990, University of Colorado-Boulder

CURRENT ACADEMIC APPOINTMENTS

Professor of Economics, University of North Carolina-Chapel Hill, July 2018-

PREVIOUS ACADEMIC APPOINTMENTS

Associate Professor of Economics, University of North Carolina-Chapel Hill, 2012-June 2018

Assistant Professor of Economics, University of North Carolina-Chapel Hill, 2008-June 2012

Visiting Assistant Professor of Economics, University of North Carolina-Chapel Hill (2007-08)

Assistant Professor of Economics, Florida International University (2004-2007)

Visiting Lecturer of Econometrics, University of California-San Diego (2001-2003)

RESEARCH VISITS

Research visit: Department of Economics, McGill University (February 2015)

Research visit : Department of Economics, Brown University (February 2013)

Visiting Fellow, CIREQ : University of Montreal and Concordia University (February 2013)

Visiting Fellow, CIREQ : University of Montreal and Concordia University (October 2010)
Visiting Fellow, CIREQ : University of Montreal and Concordia University (March 2010)
Visiting Fellow, CenTER : Dept. of Econometrics, University of Tilburg (Fall 2009)

PROFESSIONAL AWARDS AND HONORS

2021 - Econometric Theory Multa Scripsit Award
2018 - Southern Economic Association Presidential Session organizer: D.C.
2016 - Program Committee: Intern. Work-Conf. on Time Series - 2016: U. Granada, Spain
2015 - Session organizer: Computational and Financial Econometrics – London, Dec. 2015
2015 - Invited Speaker: Computational and Financial Econometrics – London, Dec. 2015
2015 - Program Committee: Intern. Work-Conf. on Time Series - 2015: U. Granada, Spain
2015 - Invited Speaker, 9th Intern. Conf. on Extreme Value Analysis: Univ. Mich., June 2015
2014 - Invited Speaker, European Research Consortium on Informatics and Mathematics:
Robust Estimation in Extreme Value Theory: Pisa, Italy, Dec. 2014
2014 – Invited Speaker, Cowles Foundation Confer. in Econometrics : Yale, June 2-3, 2014
2014 - Organizing Committee: Cambridge/SoFiE Conf. on Skewness, Heavy Tails, Market
Crashes and Dynamics -2014: Cambridge University
2013 - Invited Speaker, European Research Consortium on Informatics and Mathematics:
Times Series Extremes: London, Dec. 2013
2013 - Invited Speaker, Southern Economic Association - Tampa, FL, Nov. 2013
2012 - Invited Speaker, Statistics of Lévy Driven Models (workshop) - Ulm, Germany
2011 - Invited Speaker, Workshop on New Developments in Econometrics - Brussels,
Belgium
2010 - Chair, Joint Statistical Meeting - Vancouver, Canada
2008 - Invited Speaker, Computational and Financial Econometrics – Neuchâtel, Switzerland
2008 - Chair, Computational and Financial Econometrics – Neuchâtel, Switzerland
2007 - Invited Speaker (Young Researcher), SAMSI Workshop on Extreme Events - Raleigh
2004 - Chair, Econometric Society North American Winter Meeting - Providence, RI

PROFESSIONAL SERVICE

Econometrics and Statistics

Associate Editor – *Journal of Time Series Analysis*, 2013-
Associate Editor – *Econometrics Journal*, 2013-
Associate Editor – *Econometrics and Statistics*, 2015-2017

2016 - Program Committee: Intern. Work-Conf. on Time Series - 2016: U. Granada, Spain
2015 - Session organizer: Computational and Financial Econometrics – London, Dec. 2015
2015 - Program Committee: Intern. Work-Conf. on Time Series - 2015: U. Granada, Spain
2014 - Organizing Committee: Cambridge/SoFiE Conf. on Skewness, Heavy Tails, Market
Crashes and Dynamics -2014: Cambridge University
2010 - Chair, Joint Statistical Meeting - Vancouver, Canada

2008 - Chair, Computational and Financial Econometrics – Neuchâtel, Switzerland
2004 - Chair, Econometric Society North American Winter Meeting - Providence, RI

UNC

Post Tenure Review Committee, 2020-2022 (chaired 2021)
Director of Graduate Studies, 2017–2019
Graduate Placement Director, 2015-2017
Faculty Council representing Tenured Faculty, 2015-2019

BOOK CHAPTERS

1. Hill, J. B. (2012). Heavy-Tail and Plug-In Robust Consistent Conditional Moment Tests of Functional Form: in X. Chen and N. Swanson (ed.'s), *Recent Advances and Future Directions in Causality, Prediction, and Specification Analysis: Essays in Honor of Halbert White Jr.*, pp. 241-274. Springer: New York.
2. Hill, J. B. (2010). Heavy Tails and Mixed Distribution Hypothesis. *Encyclopedia of Quantitative Finance*, Wiley.

INVITED CONTRIBUTIONS

1. Hill, J. B. (2012). Dependence and Stochastic Limit Theory, in S. Anatolyev (ed.) *Quantile* (in Russian).
2. Hill, J. B. (2010). Heavy Tails and Mixed Distribution Hypothesis. *Encyclopedia of Quantitative Finance*, Wiley.

PUBLISHED AND FORTHCOMING PEER REVIEWED PAPERS/CHAPTERS

1. Hill, J. B. (2021). Weak Identification Robust Wild Bootstrap Applied to a Consistent Model Specification Test, *Econometric Theory* 37, 409-463.
2. Hill, J. B. and Motegi, K. (2020). A Max-Correlation White Noise Test for Weakly Dependent Time Series, *Econometric Theory* 36, 907-960.
3. Hill, J. B. and Motegi, K. (2019). Testing the White Noise Hypothesis of Stock Markets, *Economic Modeling* 76, 231-242.
4. Ghysels, E., Hill, J. B. and Motegi, K. (2017). Testing a Large Set of Zero Restrictions in Regression Models, with an Application to Mixed Frequency Granger Causality: *Journal of Econometrics*: forthcoming.
5. McCloskey, A. and J. B. Hill (2017). Parameter Estimation Robust to Low-Frequency Contamination. *Journal of Business and Economic Statistics* 35, 598-610.
6. Hill, J. B. and A. Prokhorov (2016). GEL Estimation for GARCH Models with Robust Empirical Likelihood Inference. *Journal of Econometrics* 190, 18-45.
7. Ghysels, E., J. B. Hill, and K. Motegi (2016). Testing for Granger Causality with Mixed

- Frequency Data. *Journal of Econometrics* 192, 207-230.
8. Hill, J. B., D. Li., and L. Peng (2016). Unified Interval Estimation for an AR(1) Process with Dependent Errors. *Statistica Sinica* 26, 119-136.
 9. Aguilar, M. and J. B. Hill (2015). Robust Score and Portmanteau Tests of Volatility Spillover. *Journal of Econometrics* 184, 37-61.
 10. Hill, J. B. (2015). Expected Shortfall Estimation and Gaussian Inference for Infinite Variance Time Series. *Journal of Financial Econometrics* 13, 1-44.
 11. Hill, J. B. (2015). Robust Generalized Empirical Likelihood for Heavy Tailed Autoregressions with Conditionally Heteroscedastic Errors. *Journal of Multivariate Analysis* 135, 131-152.
 12. Hill, J. B. (2015). Tail Index Estimation for a Filtered Dependent Time Series. *Statistica Sinica* 25, 609-630.
 13. Hill, J. B. (2015). Robust Estimation and Inference for Heavy Tailed GARCH. *Bernoulli* 21, 1629-1669.
 14. Hill, J. B. and L. Peng (2014). Unified Interval Estimation for Random Coefficient Autoregressive Models. *Journal of Time Series Analysis* 35, 282-297.
 15. Hill, J. B. and A. Shneyerov (2013). Are There Common Values in First-Price Auctions? A Tail-Index Nonparametric Test. *Journal of Econometrics* 174, 144-164.
 16. Hill, J. B. (2013). Least Tail-Trimmed Squares for Infinite Variance Autoregressions. *Journal of Time Series Analysis* 34, 168-186.
 17. Hill, J. B. (2013). Stochastically Weighted Average Conditional Moment Tests of Functional Form. *Studies in Nonlinear Dynamics and Econometrics* 17, 121-141.
 18. Hill, J. B. and M. Aguilar (2013). Moment Condition Tests for Heavy Tailed Time Series. *Journal of Econometrics* 172, 255-274.
 19. Hill, J. B. (2013). Consistent GMM Residuals-Based Tests of Functional Form. *Econometric Reviews* 32, 361-383.
 20. Hill, J. B. (2012). Heavy-Tail and Plug-In Robust Consistent Conditional Moment Tests of Functional Form: in X. Chen and N. Swanson (ed.'s), *Recent Advances and Future Directions in Causality, Prediction, and Specification Analysis: Essays in Honor of Halbert L. White Jr.*, pp. 241-274. Springer: New York.
 21. Hill, J. B. (2011). Extremal Memory of Stochastic Volatility with an Application to Tail Shape Inference. *Journal of Statistical Planning and Inference* 141, 663-676.
 22. Hill, J. B. (2011). Tail and Non-Tail Memory with Applications to Extreme Value and Robust Statistics. *Econometric Theory* 27, 844-884.
 23. Anbarci, N., J. B. Hill, and H. Kirmanoglu (2011). Institutions and Growth Volatility. *Economic Papers* 30, 233-252.
 24. Hill, J. B. (2010). On Tail Index Estimation for Dependent, Heterogeneous Data. *Econometric Theory* 26, 1398-1436.

25. Hill, J. B. (2010). Heavy Tails and Mixed Distribution Hypothesis. *Encyclopedia of Quantitative Finance*, Wiley.
26. Hill, J. B. (2009). On Functional Central Limit Theorems for Dependent, Heterogeneous Arrays with Applications to Tail Index and Tail Dependence Estimation. *Journal of Statistical Planning and Inference* 139, 2091-2110.
27. Hill, J. B. (2008). Consistent and Non-Degenerate Model Specification Tests Against Smooth Transition and Neural Network Alternatives. *Annales D'Economie et de Statistique* 90, 145-179.
28. Hill, J. B. (2007). Efficient Tests of Long-Run Causation in Trivariate VAR Processes with Rolling Window Study of the Money-Income Relationship. *Journal of Applied Econometrics* 22, 747-765.
29. Hill, J. B. (2006). Strong Orthogonal Decompositions and Nonlinear Impulse Response Functions for Infinite Variance Processes, *Canadian Journal of Statistics* 34, 453-473.
30. Carlos, A., J. B. Hill and N. Moyen (2002). Royal African Company Share Prices during the South Sea Bubble. *Explorations in Economic History* 39, 61-87.

PAPERS SUBMITTED FOR PUBLICATION

31. Hill, J. B. (2022). A Smoothed P-Value Test When There is a Nuisance Parameter under the Alternative.

PAPERS INVITED FOR REVISION AND RESUBMISSION

32. Hill, J. B. (2020). Testing (Infinitely) Many Zero Restrictions, *revised and resubmitted to Journal of Econometrics*.

WORK IN PROGRESS

33. Hill, J. B. *Inference in High Dimensional Nonlinear Semi-Nonparametric Regression Models*.
34. Hill, J. B. *A Wavelet Based Bootstrapped Test of Covariance Stationarity*
35. Hill, J. B. *Parametric Bootstrap under Possible Weak Identification*

OLD WORKING PAPERS

36. Chaudhuri, S. and J. B. Hill (2015). Robust Estimation and Inference for Average Treatment Effects.
37. Hill, J. B. and A. McCloskey (2013). Heavy Tail Robust Frequency Domain Estimation
38. Hill, J. B. and E. Renault (2011). Generalized Method of Moments with Tail Trimming

PROFESSIONAL ACTIVITIES

JOURNAL, ACADEMIC PRESS and GRANT PROPOSAL REFEREE

Econometrics: *Econometrica*, *Journal of Econometrics*, *Econometric Theory*, *Journal of Business and Economic Statistics*, *Quantitative Economics*, *Oxford Bulletin of Economics and Statistics*, *Journal of Applied Econometrics*, *Journal of Financial Econometrics*, *Econometric Reviews*, *Econometrics Journal*, *Studies in Nonlinear Dynamics and Econometrics*, *Econometrics*, *Econometrics and Statistics*

Statistics, Mathematics and Physics: *Biometrika*, *Annals of Statistics*, *Journal of the American Statistical Association*, *Journal of the Royal Statistical Society Series B*, *Scandinavian Journal of Statistics*, *Extremes*, *Bernoulli*, *Stochastic Processes and their Applications*, *Statistics and Probability Letters*, *Annals of the Institute of Statistical Mathematics*, *Annals of Applied Statistics*, *Journal of Applied Statistics*, *Journal of Nonparametric Statistics*, *Statistica Sinica*, *Journal of Multivariate Analysis*, *Journal of Time Series Analysis*, *Communications in Statistics: Simulation and Computation*, *Statistical Methods and Applications*, *Stat-ISI*, *IMA Journal of Management Mathematics*, *Journal of the Korean Statistical Society*, *Computational Statistics*, *Computational Statistics and Data Analysis*, *Statistical Papers*, *Physica A: Statistical Mechanics*, *Physica D: Nonlinear Phenomena*, *Hacetatepe Journal of Mathematics and Statistics*, *Journal of Systems Science and Complexity*

Economics and Finance: *International Economics and Finance Journal*, *Economic Modeling*, *Energy Economics*, *Journal of Empirical Finance*

Other: National Science Foundation: Statistics grant proposal, Yale University Press: History and Economics book proposal, John Wiley & Sons: Mathematics and Statistics book proposal, National Security Agency: Grant proposal in probability and statistics, Elsevier: book proposal.

EDITORIAL

Associate Editor – *Journal of Time Series Analysis*, 2013-
Associate Editor – *Econometrics Journal*, 2013-
Associate Editor – *Econometrics and Statistics*, 2015-2017

AFFILIATIONS

Institute of Mathematical Statistics, Econometric Society, American Economic Association, Southern Economic Association

TEACHING

UNDERGRADUATE: *Econometrics*, *Time Series Forecasting*, *Public Finance*, *Mathematical Economics*, *Microeconomics: principles*, *intermediate*, *Macroeconomics: principles*, *intermediate*

GRADUATE: Econometric Theory, Time Series, Nonlinear Time Series, Mathematical Statistics and Probability Theory, Microeconometrics, Applied Time Series Forecasting, Public Finance

DISSERTATION/THESIS COMMITTEES

Ph.D. Adviser

Tianqi Li (UNC, expected May 2024, *Regularized Regression when Boundary Values are Possible*)
Jay Denis (UNC, Ph.D. May 2019, *Bootstrapping under Weak Identification*)
Jose Campillo (UNC, Ph.D. May 2018, *Three Papers on Weak Identification Robust Inference*)
Dimitris Katsoridas (UNC: Ph.D. May 2015: *essays on fiducial theory and inference*: joint with Jan Hannig)

Dissertation Committees (completed dissertations)

Chan Kim (UNC, Ph.D. in Economics expected 2023, *financial econometrics*)
Yiyao Luo (UNC, Ph.D. in Economics expected 2023, *financial econometrics*)
Anessa Custovic (UNC, Ph.D in Economics, 2020, *financial econometrics*)
Chen Xi (UNC, Ph.D. in Statistics, 2017, *financial econometrics*)
Hanwei Liu (UNC, Ph.D. in Economics 2017, *financial econometrics*)
Atet Wijoseno (UNC, Ph.D. in Economics 2016, *applied macro*)
Daniel Soques (UNC, Ph.D. in Economics 2016, *applied macro*)
Dimitris Katsoridas (UNC, Ph.D. in Economics 2015, *econometrics/statistics*)
Giang Nguyen (UNC, Ph.D. in Economics 2014, *applied finance*)
Huan Zhou (UNC, Ph.D. in Economics 2014, *macroeconometrics*)
Kaiji Montegi (UNC, Ph.D. in Economics 2014., *macroeconometrics*)
David Frazer (UNC, 2014: Ph.D., *econometric theory*)
Nazir Ozkan (UNC, Ph.D. in Economics 2014, *applied macroeconometrics*)
Savascin (UNC, Ph.D. in Economics 2013, *macroeconomics*)
Stephen Goldberger (UNC, Ph.D. in Economics 2013, *financial econometrics*)
Fernando Chaque (UNC, Ph.D. in Economics 2012, *financial econometrics*)
Mustaffa Haluk Guler (UNC, Ph.D. in Economics 2012, *macroeconomics*)
Teerawut Sripinit (UNC, Ph.D. in Economics 2012, *macroeconomics*)
Stanis Krapov (UNC, Ph.D. in Economics 2011, *financial econometrics*)
Aguilar (UNC, Ph.D. in Economics 2008, *financial econometrics*)
Jeffrey Czaikowski (FIU, Ph.D. in Economics 2007, *environmental economics*)

Honors Adviser

Hanlin Li (UNC, Honors, 2022, *Volatility Spillover in Commodity Prices*)
Longxuan Wang (UNC, Honors, 2016, *Causal Relationship and Volatility Spillover between Chinese CSI 300 Index and Index Futures*)
Clay Hackney (UNC, Highest Honors, 2015, *Mixed Freq. Analysis of Energy Consumption and Economic Growth*)
Cameron Parker (UNC, Honors, 2012, *Prediction Markets as Financial Markets*)
Evgeniya Bakunova (UNC, Highest Honors, 2009, *Intertemporal Decision in Making Economic Agents*)

SERVICE (complete list)

Internal (UNC)

UNC

Faculty Council representing Tenured Faculty: 2016-2019

Faculty Council representing Tenured Faculty: 2015-2016

Economics Department

Post Tenure Review Committee: August 2019-July 2021

Director of Graduate Studies: Jan. 2017 - Dec. 2018

Graduate Placement Director: 2015 - 2017

Appeals Committee: 2013-2015

Econometric Workshop organizer: 2012-2015

Student Econometrics Workshop organizer: 2015-

Hiring Committees: 2011-2012, 2013-2014, 2014-2015, 2016-2017

Advisory Committee: 2008-2009

External Review Response Committee: 2008-2009.

External

Associate Editor: Econometrics Journal, 2013-2016, 2016-2019

Associate Editor: Journal of Time Series Analysis, 2013-

Associate Editor: Econometrics and Statistics, 2015 - 2017

Southern Economic Association Presidential Session organizer - 2018: D.C.

Program Committee: International Work-Conference on Time Series - 2016: U. Granada

Program Committee: Computational and Financial Econometrics – London, Dec. 2015

Program Committee: Computational and Financial Econometrics, London 2015

Program Committee: International Work-Conference on Time Series - 2015: U. Granada

Program Committee: Cambridge/SoFiE conference on Heavy Tails -2014: Cambridge U.

Chair: Joint Statistical Meeting - Vancouver, Canada, 2010

Chair: Computational and Financial Econometrics – Neuchâtel, Switzerland, 2008

Chair: Econometric Society North American Winter Meeting - Providence, RI, 2004