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

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Feb. 2025

Research Fields

High Dimensional Statistics/Econometrics, Econometric Theory, Nonparametrics, Extreme Value Theory

Research Interests

- *High dimensional inference*
- *Wavelet-based covariance stationarity tests*
- *Weak Identification Robust Bootstrap 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 Professor, 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

PUBLICATIONS

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

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

PUBLISHED AND FORTHCOMING PEER-REVIEWED JOURNAL ARTICLES

5. Hill, J. B. (2024). Mixingale and Physical Dependence Equality with Applications, *Statistics and Probability Letters*: in press
6. Chaudhuri, S. and Hill, J. B. (2024). Robust Estimation and Inference for Average Treatment Effects, *Econometric Reviews*: in press.
7. Hill, J.B. and Li, T. (2025). A Bootstrapped Test of Covariance Stationarity based on Orthonormal Transformations, *Bernoulli Journal* 31, 1527-1551.
8. Hill, J. B. (2025). Testing Many Zero Restrictions in a High Dimensional Linear Regression Setting, *Journal of Business and Economic Statistics* 43, 55-67.
9. Hill, J. B. (2024). A Smoothed P-Value Test When There is a Nuisance Parameter under the Alternative, *Journal of Statistical Planning and Inference*: in press.
10. Hill, J. B. (2021). Weak Identification Robust Wild Bootstrap Applied to a Consistent Model Specification Test, *Econometric Theory* 37, 409-463.
11. Hill, J. B. and Motegi, K. (2020). A Max-Correlation White Noise Test for Weakly Dependent Time Series, *Econometric Theory* 36, 907-960.

12. Hill, J. B. and Motegi, K. (2019). Testing the White Noise Hypothesis of Stock Markets, *Economic Modeling 76, 231-242*.
13. 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.
14. McCloskey, A. and J. B. Hill (2017). Parameter Estimation Robust to Low-Frequency Contamination. *Journal of Business and Economic Statistics* 35, 598-610.
15. Hill, J. B. and A. Prokhorov (2016). GEL Estimation for GARCH Models with Robust Empirical Likelihood Inference. *Journal of Econometrics* 190, 18-45.
16. Ghysels, E., J. B. Hill, and K. Motegi (2016). Testing for Granger Causality with Mixed Frequency Data. *Journal of Econometrics* 192, 207-230.
17. 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.
18. Aguilar, M. and J. B. Hill (2015). Robust Score and Portmanteau Tests of Volatility Spillover. *Journal of Econometrics* 184, 37-61.
19. Hill, J. B. (2015). Expected Shortfall Estimation and Gaussian Inference for Infinite Variance Time Series. *Journal of Financial Econometrics* 13, 1-44.
20. Hill, J. B. (2015). Robust Generalized Empirical Likelihood for Heavy Tailed Autoregressions with Conditionally Heteroscedastic Errors. *Journal of Multivariate Analysis* 135, 131-152.
21. Hill, J. B. (2015). Tail Index Estimation for a Filtered Dependent Time Series. *Statistica Sinica* 25, 609-630.
22. Hill, J. B. (2015). Robust Estimation and Inference for Heavy Tailed GARCH. *Bernoulli* 21,1629-1669.
23. Hill, J. B. and L. Peng (2014). Unified Interval Estimation for Random Coefficient Autoregressive Models. *Journal of Time Series Analysis* 35, 282-297.
24. 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.
25. Hill, J. B. (2013). Least Tail-Trimmed Squares for Infinite Variance Autoregressions. *Journal of Time Series Analysis* 34, 168-186.
26. Hill, J. B. (2013). Stochastically Weighted Average Conditional Moment Tests of Functional Form. *Studies in Nonlinear Dynamics and Econometrics* 17, 121-141.
27. Hill, J. B. and M. Aguilar (2013). Moment Condition Tests for Heavy Tailed Time Series *Journal of Econometrics* 172, 255-274.
28. Hill, J. B. (2013). Consistent GMM Residuals-Based Tests of Functional Form. *Econometric Reviews* 32, 361-383.
29. 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.

30. 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.

31. Hill, J. B. (2011). Tail and Non-Tail Memory with Applications to Extreme Value and Robust Statistics. *Econometric Theory* 27, 844-884.

32. Anbarci, N., J. B. Hill, and H. Kirmanoglu (2011). Institutions and Growth Volatility. *Economic Papers* 30, 233–252.

33. Hill, J. B. (2010). On Tail Index Estimation for Dependent, Heterogeneous Data. *Econometric Theory* 26, 1398-1436.

34. Hill, J. B. (2010). Heavy Tails and Mixed Distribution Hypothesis. *Encyclopedia of Quantitative Finance*, Wiley.

35. 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.

36. 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.

37. 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.

38. Hill, J. B. (2006). Strong Orthogonal Decompositions and Nonlinear Impulse Response Functions for Infinite Variance Processes, *Canadian Journal of Statistics* 34, 453-473.

39. 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.

UNDER REVISION FOR RESUBMISSION

40. Hill, J. B. (2024). Max-Laws of Large Numbers for Weakly Dependent High Dimensional Arrays with Applications, *revised and resubmitted to* Econometric Theory

OLD WORKING PAPERS

41. Hill, J. B. and A. McCloskey (2013). Heavy Tail Robust Frequency Domain Estimation

42. Hill, J. B. and E. Renault (2011). Generalized Method of Moments with Tail Trimming

43. Hill, J. B. (2009). A New Moment Bound and Weak Laws for Mixingale Arrays without Memory or Heterogeneity Restrictions, with Applications to Tail Trimmed Arrays

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 Statistic 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, Hacettepe Journal of Mathematics and Statistics, Journal of Systems Science and Complexity, Risk Journal

Economics and Finance: International Economics and Finance Journal, Economic Modeling, EnergyEconomics, Journal of Empirical Finance, Empirical Economics

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 (**Recent 2017-2023: Econ. 410 intermediate micro, 440 public finance, 470 econometrics, 570 econometrics**)

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

DISSERTATION/THESIS COMMITTEE

Ph.D. Adviser

Tianqi Li (UNC, expected May 2025, *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)

Yi Cui (UNC, Ph.D. in Economics expected 2025, *microeconometrics*)
Xinglin Li (UNC, Ph.D. in Economics expected 2025, *financial econometrics*)
Junsu Pan (UNC, Ph.D. in Economics expected 2023, *financial econometrics*)
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)

<u>UNC</u>

Faculty Council representing Tenured Faculty: 2016-2019
Faculty Council representing Tenured Faculty: 2015-2016
Summer Research Fellowship Review & Selection Committee: 2024

Economics Department
Diversity Equity and Inclusion Committee: July 2023-June 2025
Personnel Committee: August 2022-July 2024
Undergraduate Curriculum Committee: August 2021-June 2024
Post Tenure Review Committee: August 2019-July 2021
Director of Graduate Studies: Jan. 2017-June 2019
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-present
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