

**JENNIFER L. HILL**

PRIISM Center  
Applied Statistics, Social Science, and the Humanities  
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**Education**

HARVARD UNIVERSITY. Ph.D. in Statistics, June 2000.  
RUTGERS UNIVERSITY. M.S. in Statistics, June 1995.  
SWARTHMORE COLLEGE. B.A. in Economics, June 1991.

**Current Professional Experience**

CO-DIRECTOR

Masters in Science Program in Applied Statistics for Social Science Research (A3SR)  
New York University (2014—present)

CO-DIRECTOR

Center for Practice and Research at the Intersection of Information, Society, and Methodology  
(PRIISM), New York University (2008—present)

PROFESSOR OF APPLIED STATISTICS AND DATA SCIENCE

New York University, Applied Statistics, Social Science, and the Humanities (ASH)  
New York University (2015—present)

ASSOCIATE PROFESSOR OF APPLIED STATISTICS AND DATA SCIENCE

New York University, Steinhardt School, Humanities & Social Sciences (2008—2014)

ASSISTANT PROFESSOR OF PUBLIC AFFAIRS

Columbia University, School of International and Public Affairs (2002—2008)

CONSULTANT

Fund for Public Schools (half time commitment July 2006—July 2007)

**Publications**

BOOKS

Gelman, A. and J. Hill (2007) *Data Analysis using Regression and Multilevel/Hierarchical Models*, Cambridge University Press.

ARTICLES AND DISCUSSIONS IN REFEREED JOURNALS

Dorie, V., Hill, J., Shalit, U., Scott, M. and D. Cervone (2018) “Automated versus do-it-yourself methods for causal inference: Lessons learned from a data analysis competition,” *Statistical Science* (accepted for publication with discussion and rejoinder).

Scott, M., Diakow, R., Hill, J. and J. Middleton (2018) "Potential for Bias Inflation with Grouped Data: A Comparison of Estimators and a Sensitivity Analysis Strategy," *Observational Studies*, 4: 111-149.

Hill, J. and K.J. Hoggatt (2018) "The Tenability of Counterhypotheses: A comment on Bross' discussion of statistical criticism," *Observational Studies*, 4: 34-41.

Cappella, E., Schwartz, K., Seidman, E., Kim, H.Y., and J. Hill (2017) "A National Sample of 8th Grade Students: The Impact of Middle Grade Schools on Academic and Psychosocial Competence," *Journal of Early Adolescence*, (in press).

Harding, J., Morris, P., and J. Hill (2017) "Understanding Associations between Participation in Maternal Education and Parenting Practices," *Journal of Research in Educational Effectiveness*, 10(4): 704-731.

Middleton, J., Scott, M., Diakow, R. and J. Hill (2016) "Bias Amplification and Bias Unmasking" *Political Analysis*, 24(3): 307-323. (Winner of Society for Political Methodology's Miller Prize for the best article appearing in *Political Analysis* in 2016)

Horton, J.R., Morrison, R.S., Capezuti, E., Hill, J., Lee, E.J., Kelley, A.S. (2016) "Impact of inpatient palliative care on treatment intensity for patients with serious illness," *Journal of Palliative Medicine*, 19(9): 936-942.

Dorie, V., Harada, M., Carnegie, N., and J. Hill (2016) "A flexible, interpretable framework for assessing sensitivity to unmeasured confounding," *Statistics in Medicine*, 35(20): 3453-70.

McCormick, M., Cappella, E., O'Connor, E., McClowry, S., and J. Hill (2016) "Does intervention for parents add value to social-emotional learning programs? Evidence from the randomized trial of INSIGHTS," *Journal of Research in Educational Effectiveness*, 9(3): 364-394.

Carnegie, N., Harada, M., and Hill, J. (2016) "Assessing sensitivity to unmeasured confounding using a simulated potential confounder," *Journal of Research in Educational Effectiveness*, 9(3): 395-420.

Kern, H., Stuart, E., Hill, J. and D. Green (2016) "Assessing methods for generalizing experimental impact estimates to target samples," *Journal of Research in Educational Effectiveness*, 9(1): 103-127.

Hill, J. (2015) "Lessons we are still learning", a commentary on Cochran's 1972 paper "Observational Studies," *Observational Studies*, 1(1): 196-199.

Kropko, J., Goodrich, B., Gelman, A. and Hill, J. (2014) "Multiple Imputation for Continuous and Categorical Data: Comparing Joint and Conditional Approaches," *Political Analysis*, 22(4): 497-519.

Liu, J., Gelman, A., Hill, J., Su, Y., and J. Kropko (2014) "On the Stationary Distribution of Iterative Imputations," *Biometrika*, 101(1): 155-173.

Hill, J. and Y. Su (2013) "Assessing lack of common support in causal inference using Bayesian nonparametrics: implications for evaluating the effect of breastfeeding on children's cognitive outcomes," *Annals of Applied Statistics*, 7(3): 1386-1420.

- Kalet, A., Ellaway, R.H, Song, H.S., Nick, M., Sarpel, U, Hopkins, M.A., Hill, J., Plass, J.L., Pusic, M.V. (2013) "Factors influencing medical student attrition and their implications in a large multi-center randomized education trial," *Advances in Health Sciences Education*, 18(3): 439-50.
- Hill, J. (2012) "Discussion of 'Principal stratification as a framework for investigating mediational processes in experimental settings' by Lindsay Page", *Journal of Research on Educational Effectiveness*, 5(3): 254-257.
- Gelman, A., Hill, J. and M. Yajima (2012) "Why we (usually) don't have to worry about multiple comparisons" *Journal of Research on Educational Effectiveness*, 5(2): 189-211.
- Neidell, M.J., Cohen, B., Furuya, F., Hill, J., Jeon, C. Y., Glied, S. and E. L. Larson (2012) "Costs of Healthcare- and Community-Associated Infections with Antimicrobial-Resistant versus Susceptible Organisms," *Clinical Infectious Diseases*, 55(6), 807-815.
- Su, Y., Gelman, A., Hill, J. and M. Yajima (2011) "Multiple imputation with diagnostics (mi) in R: opening windows into the black box" *Journal of Statistical Software*, 45(2):1-31.
- El-Bassel, N., Gilbert, L., Wu, E., Witte, S., Chang, M., Hill, J., and R. Remien (2011) "Couple-Based HIV Prevention for Low-Income Drug Users From New York City: A Randomized Controlled Trial to Reduce Dual Risks," *Journal of Acquired Immune Deficiency Syndrome*, 58(2): 198-206.
- Hill, J., Weiss, C. and F. Zhai (2011) "Challenges with propensity score matching in a high-dimensional setting and a potential alternative," *Multivariate and Behavioral Research*, 46(3): 477-513.
- Hill, J. (2011) "Bayesian nonparametric modeling for causal inference," *Journal of Computational and Graphical Statistics*, 20(1): 217-240.
- Garcia, S. and J. Hill (2010) "The impact of conditional cash transfers on children's school achievement: evidence from Colombia," *Journal of Development Effectiveness*, 2(1): 117-137.
- Hill, J. and M. Scott (2009) "Discussion of 'The Essential Role of Pair Matching'," *Statistical Science*, 24(1): 54-58.
- Mincy, R., Hill, J., and M. Sinkewicz (2009) "Marriage: cause or mere indicator of future earnings growth," *Journal of Policy Analysis and Management*, 28(3): 417-439. (Winner of Vernon Prize)
- Hill, J. (2008) "Comment on 'Can Nonrandomized Experiments Yield Accurate Answers? A Randomized Experiment Comparing Random to Nonrandom Assignment'," *Journal of the American Statistical Association*, 103(484): 1346-1350.
- Hill, J. (2008) "Discussion of 'A critical appraisal of propensity score matching in the medical literature between 1996 and 2003'," *Statistics in Medicine*, 27: 2055-2061.
- Hill, J. and J. Reiter (2006) "Interval Estimation for Treatment Effects Using Propensity Score Matching," *Statistics in Medicine*, 25(13): 2230-2256.

- Witte, S., El-Bassel, N., Gilbert, L., Wu, E., Chang, M. and J. Hill (2006) "Promoting Female Condom Use to Heterosexual Couples: Findings from a Randomized Clinical Trial" *Perspectives on Sexual and Reproductive Health*, 38(3): 148-154.
- Hill, J., Brooks-Gunn, J., Waldfogel, J. and W. Han (2005) "Maternal Employment and Child Development: A Fresh Look Using Newer Methods," *Developmental Psychology*, 41(6): 833-850.
- El-Bassel, N., Gilbert, L., Wu, E., Go, H., and J. Hill. (2005) "HIV and Intimate Partner Violence Among Women on Methadone," *Social Science and Medicine*, 61(1): 171-183.
- El-Bassel, N., Witte, S., Gilbert, L., Wu, E., Chang, M., Hill, J., and P. Steinglass (2005) "Long-term effects of an HIV/STI sexual risk reduction intervention for heterosexual couples," *AIDS and Behavior*, 9(1): 1-13.
- El-Bassel, N., Gilbert, L., Wu, E., Go, H., and J. Hill (2005) "Relationship between drug abuse and intimate partner violence: A longitudinal study among women receiving methadone," *American Journal of Public Health*, 95(3): 465-470.
- Berger, L., Hill, J. and J. Waldfogel (2005) "Maternity Leave, Early Maternal Employment, and Child Outcomes in the U.S." *The Economic Journal*, 115: F29-F47.
- El-Bassel, N., Gilbert, L., Frye, V., Wu, E., Go, H., J. Hill, and B. Richman (2004) "Physical and sexual intimate partner violence among women in methadone maintenance treatment," *Psychology of Addictive Behaviors*, 18(2): 180-183.
- Hill, J., J. Brooks-Gunn, and J. Waldfogel (2003) "Sustained Effects of High Participation in an Early Intervention for Low-Birth-Weight Premature Infants," *Developmental Psychology*, 39(4): 730-44.
- Barnard, J., Frangakis, C., Hill, J., and D.B. Rubin (2003) "A Principal Stratification Approach to Broken Randomized Experiments: A Case Study of Vouchers in New York City," *Journal of the American Statistical Association*, with discussion and rejoinder, 98(462): 299-323.
- El-Bassel, N., Witte, S., Gilbert, L., Wu, E., Chang, M., Hill, J. and P. Steinglass (2003) "The Efficacy of a Relationship-Based HIV/STD Prevention for Heterosexual Couples," *American Journal of Public Health*, 93(6): 963-969.
- Hill, J. (2002) Discussion of Paul Rosenbaum's "Covariance Adjustment in Randomized Experiments and Observational Studies", *Statistical Science*, 17(3): 307-309.
- Hill, J., Waldfogel, J., and J. Brooks-Gunn (2002) "Assessing the Differential Impacts of High-Quality Child Care: A New Approach for Exploiting Post-Treatment Variables", *Journal of Policy Analysis and Management*, 21(4): 601-627. (Winner of Vernon Prize)
- Hill, J., and H. Kriesi (2001) "Classification by Opinion-Changing Behavior: A Mixture Model Approach," *Political Analysis*, 9(4): 301-324.
- Hill, J., and H. Kriesi (2001) "An Extension and Test of Converse's 'Black-and-White' Model of Response Stability," *American Political Science Review*, 95(2): 397-414.

Hill, J. (2001) "Accommodating Missing Data in Mixture Models for Classification by Opinion-Changing Behavior," *Journal of Educational and Behavioral Statistics*, 26(2): 241-276.

Barnard, J., Frangakis, C., Hill, J., and D. B. Rubin (2001) "School Choice in NY City: A Bayesian Analysis of an Imperfect Randomized Experiment," with discussion and rejoinder, in *Case Studies in Bayesian Statistics*, Vol. V. Edited by Kass et al. Springer-Verlag.

Barnard, J., Du, J., Hill, J., and D. B. Rubin (1998) "A Broader Template for Analyzing Broken Randomized Experiments," *Sociological Methods and Research*, 27: 285-317.

#### BOOK MANUSCRIPTS IN PROGRESS

"Regression and other stories" (with A. Gelman, to be published 2018, Cambridge University Press)

"Multilevel models" (with A. Gelman, to be published 2018, Cambridge University Press)

#### JOURNAL ARTICLES OR INVITED BOOK CHAPTERS IN PROGRESS OR SUBMITTED

"Machine Learning and Propensity Scores: Capitalizing on the advantages, avoiding the pitfalls" (with Glazer, A. and Fellers, L.)

"Partial identification of causal effects with grouped data when ignorability is violated" (with Scott, M. and Middleton, J.)

#### INVITED PAPERS, BOOK CHAPTERS, AND OTHER MANUSCRIPTS

Hill, J. and E. Stuart (2014) "Causal Inference: Overview," *International Encyclopedia of the Social and Behavioral Sciences*, Elsevier.

Hill, J. (2013) "Multilevel models and causal inference" *The SAGE Handbook of Multilevel Modeling*, Ed. By Scott, M., Simonoff, J., and Marx, B.

Martin, A., Gardner, M., Brooks-Gunn, J. and J. Hill (2008) "Early Head Start Impacts Over Time and by Level of Participation" prepared (through a subcontract to Mathematica Policy Research) for Partnership for America's Economic Success, The Pew Charitable Trusts.

Hill, J. (2005) "Evaluating School Choice Programs," *Statistics: A Guide to the Unknown, 4th Edition*. Edited by R. Peck, G. Casella, G. Cobb, R. Hoerl, D. Nolan, R. Starbuck, and H. Stern. Thomson Learning: Belmont, CA.

Hill, J., Reiter, J. and E. Zanutto (2004) "A comparison of experimental and observational data analyses," *Applied Bayesian Modeling and Causal Inference from an Incomplete-Data Perspective*. Edited by Andrew Gelman and Xiao-Li Meng. West Sussex, England: Wiley.

Hill, J. (2001) "Bayesian Exploration into Competing Models for Opinion-Changing Behavior," Proceedings of Society for Bayesian Statistical Science Section of the Joint Statistical Meetings.

Hill, J., Rubin, D. B., and N. Thomas. (2000) "The Design of the New York School Choice Scholarship Program Evaluation," *Research Design: Donald Campbell's Legacy*, ed. by Leonard Bickman, Sage Publications.

Hill, J., and C. Morris (2000) "The Health Insurance Experiment: Design Using the Finite Selection Model," in *Public Policy and Statistics: Case Studies from RAND*, edited by S. Morton and J. Rolph. New York: Springer-Verlag.

Hollister, R. G. and J. Hill (1995) "Problems in the Evaluation of Community-Wide Initiatives," in *Proceedings from the Aspen Institute's Roundtable on Comprehensive Community Initiatives for Children and Families Conference, New Approaches to Evaluating Community Initiatives: Concepts, Methods, and Contexts*, edited by J.P. Connell, A.C. Kubisch, L.B. Schorr, and C.H. Weiss, 127-72. Queenstown, MD: The Aspen Institute Publications Office.

#### PAPERS ISSUED AS WORKING PAPERS

Hill, J. (2004) "Reducing bias in treatment effect estimation in observational studies suffering from missing data," Columbia University Institute for Social and Economic Research and Policy (ISERP) working paper 04-01.

Hill, J. (1997) "An application of Bayesian Statistics to Program Evaluation," Harvard Project on Schooling and Children Working Paper. Cambridge, MA.

Hollister, R. G. and J. Hill (1995) "Problems in the Evaluation of Community-Wide Initiatives," Russell Sage Foundation Working Paper #70.

#### Statistical Software

Dorie, V., Hill, J. "bartCause: Causal Inference using Bayesian Additive Regression Trees" available through The Comprehensive R Archive Network (CRAN). (2018)

Dorie, V., Hill, J., Shalit, U., Scott, M. and D. Cervone (2017) "ACIC 2016 Data Analysis Challenge simulation R package" <https://github.com/vdorie/aciccomp/tree/master/2016>

Goodrich, B., Kropko, J., Gelman, A., Yajima, M., Grazia, M., Hill, J. "R package 'mi', functions for flexible and reliable multiple imputation using chained equation" available through The Comprehensive R Archive Network (CRAN). (2015)

Carnegie, N., Harada, M., Dorie, V., and J. Hill. "treatSens: R package for sensitivity analysis" available through The Comprehensive R Archive Network (CRAN). (2014)

Gelman, A, Su, Y., Hill, J., Yajima, M, Pittau, M, Kerman, J, and T. Zheng, "arm: R package functions for processing lm, glm, mer and polr outputs" available through The Comprehensive R Archive Network (CRAN). (2007)

#### Previous Professional Experience

##### CONSULTING STATISTICIAN

Social Intervention Group, CUSSW (February 2001--April 2002), New York, NY

##### POST-DOCTORAL RESEARCH FELLOW

Columbia University School of Social Work (August 2000 -- April 2002), New York, NY

##### CONSULTING STATISTICIAN

Active Girls Initiative (Fall 1998--Summer 2000), Boston, MA

#### OTHER

Kwasha Lipton (July 1991--June 1993), Fort Lee, NJ

Account Supervisor in the Defined Contributions division of a benefits consulting firm. Managed savings, profit sharing, and retirement plan valuations for Fortune 500 and other large corporations. Met with and trained clients, programmed in a variety of computer formats, and supervised other employees.

Rockefeller Foundation (June 1990--August 1990), New York, NY

Research Assistant for Dr. Phoebe Cottingham. Worked independently to design and implement several projects to monitor ongoing programs

### **Grants and awards**

#### AWARDS

Miller Prize for the best paper published in Political Analysis in 2016

Steinhardt Teaching Excellence Award (2016)

Vernon Prize for the best paper published in JPAM in 2009

Vernon Prize for the best paper published in JPAM in 2002

Certificates of Distinction in Teaching (Fall 1995, Fall 1998)

#### FUNDED GRANTS

Co-PI (with Andrew Gelman) on "Causal inference using hierarchical and non-parametric Bayesian interaction models" awarded by the Office of Naval Research in the amount of \$695,291 in total costs.

Co-PI (with Dana Burde and Elisabeth King as PI's) on "Youth, Peace, and Violence in Nairobi and Karachi: Testing Educational Assumptions" awarded by Spencer Foundation \$1,000,000 in total costs.

Co-PI (with Pamela Morris as PI) on "The New York University (NYU) Pre-doctoral Training Program in Education" awarded by the Institute of Education Sciences in the amount of \$4,000,000 in total costs.

PI on "NYU/Columbia Quantitative Postdoctoral Training Program" awarded by the Institute of Education Sciences in the amount of \$686,999 in total costs.

PI on grant for "Sensitivity Analysis--if we're wrong, how far are we from being right?" awarded by the Institute of Education Sciences in the amount of \$918,278 in total costs.

Co-PI (with Andrew Gelman) on grant, "Practical Solutions for Missing Data" awarded by the Institute of Education Sciences in the amount of \$563,170 in direct costs, \$904,973 in total costs

Co-PI (with Christopher Weiss) on grant awarded by National Science Foundation in the amount of \$61,568 in direct costs, \$99,125 in total costs

Co-Pi (with Christopher Weiss) on grant awarded by Smith Richardson Foundation \$76,903 in direct costs, \$84,593 in total costs

Columbia University Institute for Child and Family Policy Small Grants Program Award (2001)

Harvard Univ. Graduate Society Fellowship Award for Dissertation Research (Spring 1999)

Harvard Graduate Student Council Conference Grant (Spring 1999)

## **Professional Activities**

### ASSOCIATE EDITOR

Statistics, Politics, and Policy, 2014-2016  
Journal of Causal Inference, 2011-present  
Journal of Educational and Behavioral Statistics, July 2010-2018  
Journal of the Royal Statistical Society – Series A, January 2012-January 2015  
Biometrics, July 2009-July 2012

### REFEREE

Journal of the American Statistical Association, American Political Science Review, Political Analysis, Evaluation and Program Planning, Biometrics, Journal of Political Economy, Child Development, Developmental Psychology, International Journal of Obesity, Statistics in Medicine, Journal of Business and Economic Statistics, The American Statistician, Health Economics, Journal of Statistical Software, Technometrics, Educational Evaluation and Policy Analysis, Journal of Educational and Behavioral Statistics, Psychological Methods

### PANEL REVIEWER

Panel reviewer for the Institute for Education Sciences, 2008-present

### AD-HOC REVIEWER

National Science Foundation, Smith Richardson Foundation

### CONFERENCE ORGANIZER

“Atlantic Causal Inference Conference” May 2016 at New York University.  
Convened approximately 240 statisticians, computer scientists, epidemiologists, biostatisticians, economists, political scientists, and sociologists for a two-day conference.

“Atlantic Causal Inference Conference” May 2010 at New York University.  
Convened approximately 120 statisticians, epidemiologists, biostatisticians, economists, political scientists, and sociologists for a two-day conference.

“Biannual Mid-Atlantic Causal Inference Workshop” January 2007 at Columbia University.  
Convened approximately 45 statisticians, epidemiologists, economists, political scientists, and sociologists for this two-day conference.

### WORKSHOPS AND SHORTCOURSES

Propensity score matching and causal inference  
Columbia University's Institute for Social and Economic Research and Policy (April, 2004, March 2006), Social Intervention Group at Columbia University School of Social Work (February 2004)

Missing data and multiple imputation  
Society for Research in Educational Effectiveness (March 2011), Fordham University (May 2006), Institute for Social and Economic Research and Policy, Columbia University (February 2005), Social Intervention Group at Columbia University School of Social Work (November 2004)

### MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Statistical Association (1993--present)



Association for Public Policy and Management (1999--present)  
International Society for Bayesian Analysis (2000--present)  
Society for Research on Educational Effectiveness (2009-present)