

January 2017

## CURRICULUM VITAE

Michael E. Sobel, Professor, Department of Statistics, Columbia University,  
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### Formal Education

Ph.D., Sociology, University of Wisconsin, Madison, 1980. Thesis title: "Lifestyle and Social Structure in Contemporary American Society: Concepts, Definitions, and Analyses."

M.S., Statistics, University of Wisconsin, Madison, 1978.

M.S., Sociology, University of Wisconsin, Madison, 1975.

B.A., Sociology, Florida State University, Tallahassee, FL 1972.

### Employment History

Professor, Department of Statistics, Columbia University, July 2010 - present.

Professor, Department of Sociology, Columbia University, July 1999–June 2013.

Visiting Professor, Department of Biostatistics and Sociology, and visiting faculty associate in the Institute for Social Research, University of Michigan, 1996–1997.

Professor, Department of Sociology and Program in Applied Mathematics, University of Arizona, April 1991 - June 1999 .

Associate Professor, Department of Sociology and Program in Applied Mathematics, University of Arizona, April 1986 - April 1991.

Assistant Professor, Department of Sociology, University of Arizona, August 1982 - April 1986.

NIMH Postdoctoral Fellow, Department of Sociology, Indiana University, January 1982 - August 1982.

Research Analyst, Office of Research Methods and Standards, Bureau of Labor Statistics, January 1980 - January 1982.

### Professional Affiliations

American Statistical Association

Elected Member, Sociological Research Association

### Professional Service

2015–present Associate Editor, *Observational Studies* 2013–present Associate Editor, *Journal of Causal Inference* 1997–2001 Co-editor, *Sociological Methodology*.

1995–1997 Editorial Board, *Sociological Methodology*.

1987-1989 Editorial Board, American Journal of Sociology.  
1986-1988 Council, American Sociological Association Methodology Section.  
1985 Taught (with C. C. Clogg) a short course on “Advanced Contingency Table Analysis” for the American Sociological Association.  
1985-1993 Editorial Board, Sociological Methodology.  
1985-1993 Editorial Board, Law and Human Behavior.  
1984- Editorial Board, Sociological Methods and Research.  
1973- Papers, proposals and monographs reviewed for American Educational Research Journal, American Journal of Sociology, American Sociological Review, Biometrika, Demography, European Sociological Review, Journal of the American Statistical Association, Journal of Econometrics, Journal of the Royal Statistical Society, Multivariate Behavioral Research, Prevention Science, Psychological Methods, Psychometrika, Review of Economics and Statistics, Social Forces, Sociological Methods and Research, Sociological Methodology, National Science Foundation, Social Science Research Council, Academic Press, Plenum Press, J. Wiley Press, University of California Press and other journals, agencies and publishers.

#### Courses Taught

Causal Inference  
Generalized Linear Models  
Sampling Theory  
Probability Theory  
Analysis of Categorical Data  
Regression Analysis  
Advanced Econometrics  
Covariance Structure Analysis  
Graduate and Undergraduate Statistics  
Research Methods  
Sociological Analysis

### Books

- 2001 Sobel, M. E. and M. P. Becker (Eds.), Sociological Methodology 2001, Boston: Basil Blackwell.
- 2000 Sobel, M. E. and M. P. Becker (Eds.), Sociological Methodology 2000, Boston: Basil Blackwell.
- 1999 Sobel, M. E. and M. P. Becker (Eds.), Sociological Methodology 1999, Boston: Basil Blackwell.
- 1995 Arminger, G., C. C. Clogg, and M. E. Sobel (Eds.). Handbook of Statistical Modeling for the Social and Behavioral Sciences. New York: Plenum Press.
- 1981 Sobel, M.E. Lifestyle and Social Structure: Concepts, Definitions and Analyses. New York: Academic Press.

### Articles

- 2017 Lindquist, M.A. and Sobel, M. E. “Effective Connectivity and Causal Inference in Neuroimaging”. Pp. 419-440 in H. Ombao, M. Lindquist, W. Thompson and J. Aston (Eds.) Handbook of Neuroimaging Data Analysis, Boca Raton, FL.: Chapman and Hall/CRC.
- 2016 Sobel, M.E., Madigan, D. and Wang, W. “Causal Inference for Meta-Analysis and Multi-Level Data Structures, with Application to Randomized Studies of Vioxx”. *Psychometrika* doi:10.1007/s11336-016-9507-z
- 2015 Yu, W., Chen, K., Sobel, M.E. and Z. Ying. “Semiparametric Transformation Models for Causal Inference in Time-to-Event Studies with All-Or Nothing Compliance”. *Journal of the Royal Statistical Society, Series B* 77:397-415.
- 2014 Sobel, M.E. and Lindquist, M. “Causal Inference for fMRI Time Series Data with Systematic Errors of Measurement in a Balanced On/Off Study of Social Evaluative Threat”. *Journal of the American Statistical Association* 109:967-976.
- 2013 Wang, X. and Sobel, M.E. “New Perspectives on Causal Mediation Analysis”. Pp. 215-242 in S. Morgan (Ed.) Handbook of Causal Analysis for Social Research.” Dordrecht:Springer.
- 2012 Sobel, M. E. and Muthen, B. “Compliance Mixture Modelling with a Zero Effect Complier Class and Missing Data”. *Biometrics* 68:1037-1045.
- 2012 Sobel, M.E. “Does Marriage Boost Men’s Wages?: Identification of Treat-

ment Effects from Fixed Effects Regression Models for Longitudinal Data”. *Journal of the American Statistical Association* 107:521-529.

2009 Sobel, M.E. “Causal Inference in Randomized and Non-Randomized Studies: The Definition, Identification and Estimation of Causal Parameters”. Pp. 3-22 in R.A. Millsap and A. Maydeu-Olivares (Eds.) Handbook of Quantitative Methods in Psychology, London: Sage.

2008 Sobel, M.E. “Predicting Electoral Outcomes: A Theoretical Comparison of Model Based Forecasts, Election Markets and Public Opinion Polls.” Draft.

2008 Sobel, M.E. “Identification of Causal Parameters in Randomized Studies with Mediating Variables”. *Journal of Educational and Behavioral Statistics* 33: 230-251.

2008 Sobel, M.E. “Causation and Causal Inference: Defining, Identifying and Estimating Causal Effects”. Pp. 113-129 in T. Rudas (Ed.), Handbook of Probability: Theory and Applications, Thousand Oaks, CA: Sage.

2006 Sobel, M. E. “What do Randomized Studies of Housing Mobility Demonstrate? Causal Inference in the Face of Interference.” *Journal of the American Statistical Association* 101:1398-1407.

2006 Sobel, M. E. “Spatial Concentration and Social Stratification. Does the Clustering of Disadvantage ‘Beget’ Bad Outcomes?” Pp. 204-229 in S. Bowles, S. N. Durlauf and K. Hoff (Eds.), Poverty Traps, New York: Russell Sage Foundation.

2004 Kou, S., and M. E. Sobel. “Forecasting the Vote: An Analytical Comparison of Election Markets and Public Opinion Polls.” *Political Analysis* 12: 277-295.

2004 Sobel, M.E., N. D. De Graaf, A. Heath and Y. Zou. “Men Matter More: The Social Class Identity of Married British Women, 1985-1991.” *Journal of the Royal Statistical Society, Series A* 167: 37-52.

2004 Winship, C., and M. E. Sobel. “Causal Inference in Sociological Studies.” Pp. 481-503 in M. Hardy (Ed.), The Handbook of Data Analysis, Thousand Oaks, CA: Sage.

2001 Kou, S., and M. E. Sobel. “Hedging Electoral Risk.” *Risk* 14:95-98. Reprinted (pp. 269-274) in A. Lipton (Ed.), 2003, *Exotic Options: The Cutting Edge Collection*, Risk Books: London.

2001 Mouw, T., and M. E. Sobel. “Culture Wars and Opinion Polarization:

The Case of Abortion.” *American Journal of Sociology* 106:913-943.

2000 Jones, B., and M. E. Sobel. “Modeling Direction and Intensity in Semantically Balanced Ordinal Scales: An Assessment of Congressional Incumbent Approval.” *American Journal of Political Science* 44:174-185.

1998 Sobel, M. E., M. P. Becker and S. Minick. “Origins, Destinations, and Association in Occupation Mobility.” *American Journal of Sociology* 104: 687-721.

1998 Sobel, M. E. “Some Log-Linear and Log-Nonlinear Models for Ordinal Scales with Midpoints, with an Application to Public Opinion Data.” *Sociological Methodology*, 1998: 263-292.

1998 Sobel, M. E. “Causal Inference in Structural Equation Models of the Process of Socioeconomic Achievement: A Case Study.” *Sociological Methods and Research* 27: 318-348.

1997 Sobel, M. E. “Modeling Symmetry, Asymmetry and Change in Ordered Scales with Midpoints Using Adjacent Category Logit Models for Discrete Data.” *Sociological Methods and Research* 26:213-232.

1997 Sobel, M. E. “Measurement, Causation and Local Independence in Latent Variable Models.” Pp. 11-28 in M. Berkane (Ed.), Latent Variable Modeling and Applications to Causality, New York: Springer-Verlag.

1996 Sobel, M. E. “An Introduction to Causal Inference.” *Sociological Methods and Research* 24:353-379.

1996 Sobel, M. E. “Clifford Collier Clogg, 1949-1995: A Tribute to his Life and Work.” *Sociological Methodology*, 1996:1-38

1995 Sobel, M. E. “Causal Inference in the Social and Behavioral Sciences.” Pp. 1-38 in G. Arminger, C. C. Clogg and M. E. Sobel (Eds.), Handbook of Statistical Modeling for the Social and Behavioral Sciences. New York: Plenum Press.

1995 Sobel, M.E. “The Analysis of Contingency Tables.” Pp. 251-310 in G. Arminger, C. C. Clogg and M. E. Sobel (Eds.), Handbook of Statistical Modeling for the Social and Behavioral Sciences. New York: Plenum Press.

1994 Sobel, M. E. “Causal Inference in Artificial Intelligence.” Pp. 183-196 in P. Cheeseman and R. W. Oldford (Eds.), Selecting Models from Data: AI and Statistics IV. New York: Springer-Verlag.

1994 Sobel, M. E. “Causal Inference in Latent Variable Models.” Pp. 3-35 in A. von Eye and C. C. Clogg (Eds.), Latent Variables Analysis: Applications for Developmental Research. Newbury, CA: Sage.

- 1993 Sobel, M. E. "Some Problems in Modelling Hypotheses about the Effects of Status Inconsistency." Pp. 219-239 in R. W. Hodge and H. Strasser (Eds.), Change and Strain in Social Hierarchies: Theory and Method in the Study of Status Inconsistency. New Delhi: Ajanta Books, International.
- 1992 Sobel, M. E., and G. Arminger. "Modelling Household Fertility Decisions: A Nonlinear Simultaneous Probit Model." *Journal of the American Statistical Association* 87: 38-47.
- 1992 Sobel, M. E. "The American Occupational Structure and Structural Equation Modeling in Sociology". *Contemporary Sociology* 21: 662-666.
- 1990 Sobel, M. E. "Effect Analysis and Causation in Linear Structural Equation Models." *Psychometrika* 55: 495-515.
- 1990 Stone, C., and M. E. Sobel. "The Robustness of Estimates of Total Indirect Effects in Covariance Structure Models Estimated by Maximum Likelihood." *Psychometrika* 55: 337-352.
- 1990 Arminger, G., and M. E. Sobel. "Pseudo Maximum Likelihood Estimation of Mean and Covariance Structures with Missing Data." *Journal of the American Statistical Association* 85: 195-203.
- 1988 Sobel, M. E. "Some Models for the Multiway Contingency Table with a One-to-One Correspondence Amongst Categories." *Sociological Methodology, 1988*: 165-192.
- 1987 Sobel, M. E. "Direct and Indirect Effects in Linear Structural Equation Models." *Sociological Methods and Research* 16: 155-176. Reprinted (pp. 46-64) in J. S. Long (Ed.), 1988, Common Problems/Proper Solutions: Avoiding Errors in Quantitative Research. Beverly Hills, CA.: Sage.
- 1987 Hout, M., O. D. Duncan, and M. E. Sobel. "Association and Heterogeneity: Structural Models of Similarities and Differences." *Sociological Methodology, 1987*: 145-184.
- 1986 Sobel, M. E. "Some New Results on Indirect Effects and Their Standard Errors in Covariance Structure Analysis." *Sociological Methodology, 1986*: 159-186.
- 1985 Sobel, M. E. "Social Mobility and Fertility Revisited: Some New Models for the Analysis of the Mobility Effects Hypothesis." *American Sociological Review* 50: 699-712. Reprinted (pp. 161-186) in H. Strasser and R. W. Hodge (Eds.), 1986, Status Inconsistency in Modern Societies. Duisburg, F. R. G.: Sozialwissenschaftliche Kooperative.

1985 Sobel, M. E., M. Hout, and O. D. Duncan. "Exchange, Structure, and Symmetry in Occupational Mobility." *American Journal of Sociology* 91: 359-372.

1985 Sobel, M. E., and G. W. Bohrnstedt. "The Use of Null Models in Evaluating the Fit of Covariance Structure Models." *Sociological Methodology, 1985*: 152-178.

1984 Sobel, M. E. "Some Large Sample Standard Errors for Components of a Mean Difference Under a Linear Model." *Sociological Methodology, 1983-84*: 169-193.

1983 Sobel, M. E. "Structural Mobility, Circulation Mobility and the Analysis of Occupational Mobility: A Conceptual Mismatch." *American Sociological Review* 48: 721-727.

1983 Sobel, M. E. "Lifestyle Expenditures in Contemporary America: Relations Between Stratification and Culture." *American Behavioral Scientist* 26: 521-533.

1983 Sobel, M. E. "Stratification and Lifestyle Differentiation in Contemporary American Society." *Research in Social Stratification and Mobility* 2: 115-144.

1982 Sobel, M. E. "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models." *Sociological Methodology, 1982*: 290 -312.

1981 Sobel, M. E. "The Diagonal Mobility Models: A Substantively Motivated Class of Designs for the Analysis of Mobility Effects." *American Sociological Review* 46: 893-906.

1979 Halaby, C. N., and M. E. Sobel. "Mobility Effects in the Workplace." *American Journal of Sociology* 85: 385-416.

#### Comments and Notes

2013 Lindquist, M. A, and Sobel, M.E. "Cloak and DAG: A Response to the Comments on Our Comment." *Neuroimage* 76:446-449.

2013 Sobel, M.E. Discussion of "Experimental Designs for Identifying Causal Mechanisms", by K. Imai, D. Tingley and T. Yamamoto. *Journal of the Royal Statistical Society, Series A* 176: 45-46.

2012 Sobel, M.E., and E. Stuart. "Discussion of "Weighting Methods for Assessing Policy Effects Mediated by Peer Change", by G. Hong and T. Naomi. *Journal of Research on Educational Effectiveness* 5: 290-292.

2011 Lindquist, M. A., and Sobel, M.E. “Graphical Models , Potential Outcomes and Causal Inference: Comment on Ramsey, Spirtes and Glymour”, *Neuroimage* 57: 334-336.

2005 Sobel, M. E. Discussion of “The Scientific Model of Causality ”, by J. Heckman. *Sociological Methodology* 2005: 99-133.

2001 Sobel, M. E. “Causal Inference in the Social Sciences”. *Journal of the American Statistical Association* 95: 647-651.

1995 Sobel, M. E. “Comment: Causal Inference and Model Based Adjustments for Unmeasured Covariates”, discussion of “Causal Diagrams for Empirical Research” by J. Pearl. *Biometrika* 82: 700-702.

1993 Sobel, M. E. Discussion of “Linear Dependencies Represented by Chain Graphs”, by D. R. Cox and N. Wermuth, and “Bayesian Analysis in Expert Systems” by D. J. Spiegelhalter, A. P. Dawid, S. L. Lauritzen and R. G. Cowell. *Statistical Science* 8: 269-273.

1986 Sobel, M. E., and G. Arminger. “Platonic and Operational True Scores in Covariance Structure Analysis: An Invited Comment on Bielby’s ‘Arbitrary Metrics in Multiple Indicator Models of Latent Variables’.” *Sociological Methods and Research* 15: 44-58.

1986 Sobel, M. E., M. Hout, and O. D. Duncan. “Saving the Bath Water: An Invited Comment on Krauze and Slomczynski’s ‘Matrix Representation of Structural and Circulation Mobility’.” *Sociological Methods and Research* 14: 271-284.

1985 Sobel, M. E. “Theory, Description, and Quantification: A Note on the Independence Model in Mobility Research.” *Sociology* 19: 437-441.

1984 Sobel, M. E. “‘Frameworks’ and Frameworks: Reply to Slomczynski and Krauze.” *American Sociological Review* 49: 852-853.

1981 Fligstein, N., M.E. Sobel, and W.C. Wolf. “Response to Bridges and Miller.” *American Sociological Review* 46: 685-688.

#### Book Reviews

2004 Sobel, M. E. Review of The Theory of the Design of Experiments by D.R. Cox and N. Reid. *Sociological Methods and Research* 32: 406-408.

1997 Sobel, M. E. Review of Introduction to the Statistical Analysis of Categorical Data by Erling B. Andersen. *Journal of the American Statistical Association*



1996 Sobel, M. E. Review of Identification Issues in the Social Sciences by Charles Manski. *Journal of the American Statistical Association* 91: 438.

1993 Sobel, M. E. Review of Categorical Data Analysis by Alan Agresti. *Contemporary Sociology* 22:459-460.

1984 Sobel, M. E. Review of Working Class Life, 1899-1913 by P. R. Shergold. *American Journal of Sociology* 89: 1245-1247.

1983 Sobel, M. E. Review of Social Measurement: Current Issues by G. W. Bohrnstedt and E. F. Borgatta (Eds.), and Introduction to Multidimensional Scaling by S. S. Schiffman, M. L. Reynolds, and F. W. Young. *Contemporary Sociology* 12: 326-327.

1982 Sobel, M. E. Review of The Form of Time by E. Jacques. *Sociology and Social Research* 67: 230-231.

1982 Sobel, M. E. Review of Social Mobility and Class Structure in Modern Britain by J. H. Goldthorpe, in collaboration with C. Llewellyn and C. Payne. *Sociology and Social Research* 66: 214-216.

1981 Sobel, M. E. Review of Opportunity and Change by D. L. Featherman and R. M. Hauser. *Sociology and Social Research* 65: 229-231.

#### Technical Reports

1975 Featherman, D. L., M. E. Sobel, and D. Dickens. "Manual for Coding Occupations and Industries into Detailed 1970 Categories and a Listing of 1970 Basis Duncan Socioeconomic and NORC Prestige Scores." Center for Demography and Ecology Working Paper 75-1, University of Wisconsin, Madison.

#### Research Support

Co-principal investigator, National Institute of Health (NIH) Grant R01EB016061 (Lindquist and Sobel, Co-PI), 7/01/13-6/30/17  
"Longitudinal Causal Inference for fMRI".

Co-investigator, National Institute of Health (NIH) Grant RC1 (Wager, PI), 9/30/09-08/31/11  
"Neuroimaging-based biomarkers for two components of pain".

#### Research Fellowships and Guest Professorships

Visiting Fellow, Wissenschaftszentrum Berlin für Sozialforschung, April 2016  
Visiting Research Professor, National University of Singapore, July 2015, March

2016.

Visiting Fellow, Shanghai Center for Mathematical Sciences, December 2013, June 2014, June 2015.

Guest Professor, Fudan University, May-June 2006, May-June 2010, December 2010.

Guest Professor, Tsinghua University, March-May 2006

Guest Professor, Tilburg University, December 1996.

Fulbright Fellowship, August 1993-December 1993.

Guest Professor, Bergische Universität Wuppertal, July 1989, December 1990, July 1991, June 1995.

Guest Professor, Zentrum für Umfragen, Methoden und Analysen, June 1987.

Research Professor, University of Arizona, January 1985 - December 1985.

NIMH Postdoctoral Fellowship, Department of Sociology, Indiana University, January 1982 - August 1982.

NIH Traineeship, Demography and Ecology Training Program, Department of Sociology, University of Wisconsin, Madison, September 1972 - June 1976 and September 1978 - August 1979.

#### Invited Presentations 2012-2016

“Identification of Treatment Effects in Panel Data using Fixed Effects Regressions Models”, WZB, Berlin, April 2016. “Causal Inference for fMRI Data”, National University of Singapore, March 2016.

“Some Topics in Causal Inference”, National University of Singapore, March 2016.

“Identification and Estimation of Region Level Treatment Effects and Correlated Response for fMRI Data”, Prevention Science Methodology Group, November 2015.

“Identification and Estimation of Region Level Treatment Effects and Correlated Responses for fMRI Data”, Joint Statistical Meetings, August 2015.

“Identification of Treatment Effects in Panel Data using Fixed Effects Regressions Models”, National University of Singapore, July 2015

“Causal Inference: An Introduction”, National University of Singapore, July 2015.

“Meta-Analysis: A Causal Framework, with Application to Randomized Studies of Vioxx”, ENAR Meetings, March 2015.

“Estimation of Complier Effects in Semiparametric Survival Models”, Joint Statistical Meetings, August 2014.

“Causal Inference for fMRI Data”, Fudan University, Shanghai, June 2014.

“Causal Inference for fMRI Time Series Data with Systematic Errors of Measurement”, ENAR Meetings, March 2014.

“Causal Inference for fMRI Data”, Statistics and Applied Mathematical Sciences Institute, August 2013

“Mixture Modeling of Compliance Data”, Frontiers in Applied and Computational Mathematics Conference, New Jersey Institute of Technology, June 2013

“Identification of Treatment Effects in Longitudinal and Clustered Data using

Fixed Effects Regression Models”, Causality in Political Networks Conference, University of Chicago, May 2012

“Causal Inference for fMRI Time Series Data with Systematic Errors of Measurement”, Workshop on Quantitative Research Methods in Education, Health and Social Sciences, University of Chicago, May 2012

“Identification of Treatment Effects in Longitudinal Data from Fixed and Random Effects Regression Models ”, Harvard School of Public Health, September 2012

“Identification of Treatment Effects in Panel Data using Fixed Effects Regressions Models”, Joint Statistical Meetings, July 2012

”Modelling Compliance Using Mixture Distributions”, New Jersey Chapter of the American Statistical Association, June 2012

“Identification of Treatment Effects from Econometric Panel Data Models”, Center for Social Statistics, University of Washington, May 2012

“Compliance Mixture Modelling”, Frontiers of Causal Inference Conference, Harvard University, March 2012