

# CAUSALITY: READINGS IN STATISTICS AND ECONOMETRICS

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<http://www.hedibert.org/current-teaching/#tab-causality>

## ANNOTATED BIBLIOGRAPHY

### 1 Articles

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## 2 Articles with discussion

1. Holland (1986) Statistics and causal inference. *JASA*, 81, 945-970.  
Discussants: Rubin (Which Ifs Have Causal Answers), Cox, Glymour (Statistics and Metaphysics), Granger.
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  - Cox and Wermuth, Linear dependences represented by chain graphs, 204-218.
  - Spiegelhalter, Dawid, Lauritzen and Cowell, Bayesian analysis in expert systems, 219-247.
  - Discussion and rejoinder, 248-283.
3. Pearl (1995) Causal diagrams for empirical research. *Biometrika*, 82, 669-710.  
Discussants: Cox-Wermuth, Dawid, Fienberg, Freedman, Imbens-Rubin, Robins, Rosenbaum, Shafer, Sobel
4. Angrist, Imbens and Rubin (1996) Identification of causal effects using IVs. *JASA*, 91, 444-472.  
Discussants: Robins-Greenland, Heckman, Moffitt, Rosenbaum

5. Dawid (2000) Causal inference without counterfactuals. *JASA*, 95, 407-424.  
Discussants: Cox, Casella, Schwartz, Pearl, Robins-Greenland, Rubin, Shafer, Wasserman
6. Heckman (2005) The scientific model of causality. *Sociological Methodology*, 35, 1-150.  
Discussant: Sobel
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  - (a) Shrier (2008) Letter to the editor. *Statistics in Medicine*, 27, 2740-2741.
  - (b) Rubin (2008) Author's reply. *Statistics in Medicine*, 27, 2741-2742.
  - (c) Pearl (2009) Remarks on the method of propensity scores. *Statistics in Medicine*, 28:1415-1416.
  - (d) Sjölander (2009) Propensity scores and M-structures. *Statistics in Medicine*, 28, 1416-1420.
  - (e) Shrier (2009) Propensity scores. *Statistics in Medicine*, 28, 1317-1318.
  - (f) Rubin (2009) Should observational studies be designed to allow lack of balance in covariate distributions across treatment groups? *Statistics in Medicine*, 28, 1420-1423.
  - (g) Pearl (2009) Myth, confusion, and science in causal analysis. Technical Report.

### 3 Edited books and special issues

1. *Journal of Econometrics* (1988), Volume 39, Issues 1-2
  - Causality and causal laws in economics (Zellner)
  - On the interpretation and observation of laws (Pratt and Schlaifer)
  - Probability and causation (Skyrms)
  - Causality tests and observationally equivalent representations of econometric models (Basmann)
  - Further thoughts on testing for causality with econometric models (Swamy and Von Zur Muehlen)
  - Causal ordering, comparative statics, and near decomposability (Simon and Iwasaki)
  - Latent variables, causal models and overidentifying constraints (Glymour and Spirtes)
  - Some recent development in a concept of causality (Granger)
  - Causal relationships and replicability (Poirier)
2. *Econometric Theory* (2015), Volume 31, Issue 01
  - Trygve Haavelmo at the Cowles Commission (Bjerkholt)
  - Structural models and econometrics (Trygve Haavelmo)
  - Model discovery and Trygve Haavelmo's legacy (Hendry and Johansen)
  - Causal analysis after Haavelmo (Heckman and Pinto)
  - Trygve Haavelmo and the emergence of causal calculus (Pearl)
  - My reminiscences of Trygve Haavelmo at the Cowles Commission (Anderson)
3. Cooper and Glymor (1999) *Computation, Causation, and Discovery*. AAAI Press
  - An Overview of the Representation and Discovery of Causal Relationships Using Bayesian Networks (Cooper)
  - Prediction and Experimental Design with Graphical Causal Models (Spirtes, Glymour, Scheines, Meek, Fienberg and Slate)
  - Graphs, Structural Models, and Causality (Pearl)
  - A Bayesian Approach to Causal Discovery (Heckerman, Meed and Cooper)

- Truth is among the Best Explanations: Finding Causal Explanations of Conditional Independence and Dependence (Scheines, Glymour, Spirtes, Meek and Richardson)
  - An Algorithm for Causal Inference in the Presence of Latent Variables and Selection Bias (Spirtes, Meek and Richardson)
  - Automated Discovery of Linear Feedback Models (Richardson and Spirtes)
  - On the Impossibility of Inferring Causation from Association without Background Knowledge (Robins and Wasserman)
  - On the Possibility of Inferring Causation from Association without Background Knowledge (Glymour, Spirtes and Richardson)
  - Rejoinder to Glymour, Spirtes, and Richardson (Robins and Wasserman)
  - Response to Rejoinder (Glymour, Spirtes and Richardson)
  - Testing and Estimation of Direct Effects by Reparameterizing Directed Acyclic Graphs with Structural Nested Models (Robins)
  - A Clinician’s Tool for Analyzing Noncompliance (Maxwell, Chickering and Pearl)
  - Estimating Latent Causal Influences: TETRAD II Model Selection and Bayesian Parameter Estimation (Scheines)
  - Exploring Hypothesis Space: Examples from Organismal Biology (Shipley)
  - In-Flight Calibration of Satellite Ion Composition Data Using Artificial Intelligence Methods (Waldemark and Norqvist)
  - Causal Modeling of Spectral Data: A New Tool to Study Nonlinear Processes (Liszka)
  - Modeling Corn Exports and Exchange Rates with Directed Graphs and Statistical Loss Functions (Akleman, Bessler and Burton)
  - Causal Inferences from Databases: Why Universities Lose Students (Druzdzel and Glymour)
4. Gelman and Meng (2004) *Applied Bayesian Modeling and Causal Inference from Incomplete-Data Perspectives*. Wiley Series in Probability and Statistics.
- An overview of methods for causal inference from observational studies (Greenland).
  - Matching in observational studies (Rosenbaum).
  - Estimating causal effects in nonexperimental studies (Dehejia).
  - Medication cost sharing and drug spending in Medicare (Adams).
  - A comparison of experimental and observational data analyses (Hill, Reiter and Zanutto).
  - Fixing broken experiments using the propensity score (Sacerdote).
  - The propensity score with continuous treatments (Hirano and Imbens).
  - Causal inference with instrumental variables (Zhang).
  - Principal stratification (Frangakis).
  - Nonresponse adjustment in government statistical agencies: constraints, inferential goals, and robustness issues (Eltinge).
  - Bridging across changes in classification systems (Schenker).
  - Representing the Census undercount by multiple imputation of households (Zaslavsky).
  - Statistical disclosure techniques based on multiple imputation (Little, Liu and Raghunathan).
  - Designs producing balanced missing data: examples from the National Assessment of Educational Progress (Thomas).
  - Propensity score estimation with missing data (D’Agostino Jr).
  - Sensitivity to nonignorability in frequentist inference (Ma and Heitjan).

- Statistical modeling and computation (Titterton).
  - Treatment effects in before-after data (Gelman).
  - Multimodality in mixture models and factor models (Loken).
  - Modeling the covariance and correlation matrix of repeated measures (Boscardin and Zhang).
  - Robit regression: a simple robust alternative to logistic and probit regression (Liu).
  - Using EM and data augmentation for the competing risks model (Craiu and Duchesne).
  - Mixed effects models and the EM algorithm (Vaida, Meng and Xu).
  - The sampling/importance resampling algorithm (Li).
  - Whither applied Bayesian inference? (Carlin).
  - Efficient EM-type algorithms for fitting spectral lines in high-energy astrophysics (van Dyk and Park).
  - Improved predictions of lynx trappings using a biological model (Reilly and Zeringue).
  - Record linkage using finite mixture models (Larsen).
  - Identifying likely duplicates by record linkage in a survey of prostitutes (Belin, Ishwaran, Duan, Berry and Kanouse).
  - Applying structural equation models with incomplete data (Stern and Jeon).
  - Perceptual scaling (Wu, Guo and Zhu).
5. Berzuini, Dawid and Bernardinelli (2012) *Causality: Statistical Perspectives and Applications*. Wiley.
- Statistical causality: Some historical remarks (Cox)
  - The language of potential outcomes (Sjölander)
  - Structural equations, graphs and interventions (Shpitser)
  - The decision-theoretic approach to causal inference (Dawid)
  - Causal inference as a prediction problem: Assumptions, identification and evidence synthesis (Greenland)
  - Graph-based criteria of identifiability of causal questions (Shpitser)
  - Causal inference from observational data: A Bayesian predictive approach (Arjas)
  - Assessing dynamic treatment strategies (Berzuini, Dawid and Didelez)
  - Causal effects and natural laws: Towards a conceptualization of causal counterfactuals for nonmanipulable exposures, with application to the effects of race and sex (VanderWeele and Hernán)
  - Cross-classifications by joint potential outcomes (Sjölander)
  - Estimation of direct and indirect effects (Vansteelandt)
  - The mediation formula: A guide to the assessment of causal pathways in nonlinear models (Pearl)
  - The sufficient cause framework in statistics, philosophy and the biomedical and social sciences (VanderWeele)
  - Analysis of interaction for identifying causal mechanisms (Berzuini, Dawid, Zhang and Parkes)
  - Ion channels as a possible mechanism of neurodegeneration in multiple sclerosis (Bernardinelli, Berzuini, Foco and Pastorino)
  - Supplementary variables for causal estimation (Ramsahai)
  - Time-varying confounding: Some practical considerations in a likelihood framework (Daniel, Stavola and Cousens)
  - “Natural experiments” as a means of testing causal inferences (Rutter)
  - Nonreactive and purely reactive doses in observational studies (Rosenbaum)
  - Evaluation of potential mediators in randomised trials of complex interventions (Emsley and Dunn)



- Causal inference in clinical trials (Fischer and White)
  - Causal inference in time series analysis (Eichler)
  - Dynamic molecular networks and mechanisms in the biosciences: A statistical framework (Bowsher)
6. Morgan (2013) *Handbook of Causal Analysis for Social Research*. Springer.
- Introduction (Morgan)
  - A History of Causal Analysis in the Social Sciences (Barringer, Eliason and Leahey)
  - Types of Causes (Freese and Kevern)
  - Research Design: Toward a Realistic Role for Causal Analysis (Smith)
  - Causal Models and Counterfactuals (Mahoney, Goertz and Ragin)
  - Mixed Methods and Causal Analysis (Harding and Seefeldt)
  - Fixed Effects, Random Effects, and Hybrid Models for Causal Analysis (Firebaugh, Warner and Massoglia)
  - Heteroscedastic Regression Models for the Systematic Analysis of Residual Variances (Zheng, Yang and Land)
  - Group Differences in Generalized Linear Models (Liao)
  - Counterfactual Causal Analysis and Nonlinear Probability Models (Breen and Karlson)
  - Causal Effect Heterogeneity (Brand and Thomas)
  - New Perspectives on Causal Mediation Analysis (Wang and Sobel)
  - Graphical Causal Models (Elwert)
  - The Causal Implications of Mechanistic Thinking: Identification Using DAGs (Knight and Winship)
  - Eight Myths About Causality and Structural Equation Models (Bollen and Pearl)
  - Heterogeneous Agents, Social Interactions, and Causal Inference (Hong and Raudenbush)
  - Social Networks and Causal Inference (VanderWeele and An)
  - Partial Identification and Sensitivity Analysis (Gangl)
  - What You Can Learn from Wrong Causal Models (Berk, Brown, George, Pitkin, Traskin, Zhang and Zhao)