

TOPIC: IMPORTANCE OF CONFOUNDING OR CORNFIELD'S CONDITIONS

Question: What fraction of statistics books contain index entries on confounding or related topics?
Related topics include Simpson's Paradox, lurking variable and spurious correlation.

Appendices A, B and C list statistics books that have varying entries for confounding in their index.
Appendix A: multiple entries; Appendix B: a few entries; Appendix C: No entries.

Results: 10% of the 80 intro statistics books reviewed have multiple entries (Appendix A: 8/80);
25% have a few entries (Appendix B: 20/80) and 65% have no entries (Appendix C: 52/80).

Conclusion: Most intro statistics books have no index entries for confounding or related topics.

APPENDIX A: LOTS ON CONFOUNDING OR RELATED TOPICS (8/80: 10%)

- 2016 Causal Inference in Statistics: A Primer Pearl, Glymour, Jewell
- 2014 Seeing Through Statistics (4th ed). [60 confound; 15 Simpson] Jessica Utts (2014)
93: confounding variable: related to the explanatory variable and affects the response variable
- 2007 Mind on Statistics (3rd) Utts and Heckard (21 pages)
P 708: The more factors ruled out, "the greater the evidence for a causal connection."
- 2007 Statistics: Art and Science of Learning from Data Agresti and Franklin (9 pages)
Confounding (135, 182, 186, 483, 535); Simpson's Paradox (132, 134, 138, 473)
- 2003 Statistical Literacy: Seeing the Story behind the Statistics Milo Schield
34: "Confounders provide alternate explanations for an association"
142: "The simplest thing to take into account [in comparing amounts] is the size of the group"
154: "Confounders can be confounded by other confounders"
311: "Simpson's paradox occurs only if the confounder has a stronger association"
362: "[controlling for a] confounder can change statistical significance."
- 1999 Multivariable Analysis: Practical Guide for Clinicians Mitchell Katz (22 pages)
7 "A confounder is associated with the risk factor and casually-related to the outcome"
7 "Stratified analysis can be used to assess and eliminate confounding."
11 "If adjust for intervening variables, as...confounders, you will adjust away the effect"
11 "Statistics cannot tell you whether something is a confounder or intervening variable"
11 "Suppressor variables are a type of confounder." Transform 'no effect' into significant.
13 "Interaction occurs when impact of risk factor on outcome is change by a third variable"
13 "As with confounding, stratification can be used to identify an interaction."
19 "multivariable analysis can never adjust for unknown or unmeasured confounders."
- 1995 Seeing Through Statistics (1st-3rd) [51 confound; 14 Simpson] Jessica Utts (2004)
- 1978 Statistics (1998 3rd) Freedman, Pisani & Purves (21 p)
P. 12-28. Chapter 2: Observational Studies
Obs. Studies: "That's not an experiment you have there, that's an experience" RA Fisher
p. 13. "Good observational studies control for confounding variables."
p.20. "Hidden confounders are a major problem in observational studies."
p 27. "Confounder is a third variable associated with exposure and with disease"
p. 28. "The greatest weakness of observational studies is confounding."

APPENDIX B: SOME CONFOUNDING OR RELATED TOPICS; BUT NOT A LOT (20/80: 25%)

- 2015 Statistical Techniques in Business & Economics (16th) Lind, Marchal and Wathen (464)
- 2011 Business Statistics: A First Course (1st) [SP 69] Sharpe, DeVaux and Velleman
- 2011 Biostatistical Methods: Assessment of Relative Risks Lachin CF & SP (P. 137-145)
Confounding: where the stratification variable is the true causal agent..."
Informal: An adjustment for another variable leads to a change in the association..."
- 2010 Statistical Reasoning [SP: 105, Confounded: 151] Gary Smith [No confounder]
cannot untangle which factor is responsible, the results are said to be confounded (mixed up).
- 2008 Statistics Alive Wendy Steinberg (143, 144)
"think of XVs as parasites or leeches -- they function only by their association with the IV"
"Anything less [than random assignment] confounds interpretation of the study's results"
- 2008 Using and Understanding Mathematics (6th). Bennett and Briggs (304-305)
"Guideline 5: Beware of Confounding Variables"
- 2004 Mathematician at the Ballpark Ken Ross (SP 12-13)
Simpson's paradox (not a true paradox) is "counterintuitive and even distressing"
- 2002 The Statistical Sleuth: Methods of Data Analysis Ramsey and Schafer (p. 6)
Observation study: "impossible to draw causal conclusion" "cannot rule out confounding"
- 2001 Business Statistics: A Decision-Making Approach (5th) Groebner, Shannon, Fry & Smith
432, 469. "Spurious correlation: A correlation between two otherwise unrelated variables."
- 1998 Understanding Data [SP: 187] Griffiths, Stirling & Weldon
"can never be sure that some unmeasured lurking variable has not affected the relationship"
- 1998 Reflections on Statistics: Grades K-12 Lajoie, Editor (12)
"Planning, conducting observational studies". "Stratification to reduce confounding"
- 1995 Business Statistics for Quality and Productivity Levine, Ramsey & Berenson
568: when main effect and interactions are confounded,
- 1995 Mathematical Statistics and Data Analysis (2nd) John Rice (Confounding 422)
Confounding and Fishing Expeditions (after the fact statistics)
- 1994 Business Statistics (1997 2nd) Ken Black (505)
"Confounding variables ... not controlled, but can have an effect on the outcome"
- 1991 Statistics and Society (2nd) Federer (171-172; 208-210)
"Partial confounding in incomplete block designs...."
- 1987 Exploring Statistics: A Modern Introduction (1st) Kitchens (p. 21)
"All observational studies must deal with the problem of confounding."
- 1981 Regression: A Second Course in Statistics [99, 173] Ronald & Thomas Wonnacott
173: Spurious correlation: "both are influenced by a third variable."
"Correlation and regression cannot be used as *proof* of cause and effect..."
"useful in two ways: estimate a relationship; suggesting causal relations"
"when smoking ... highly correlated with lung cancer, causal links were investigated."
- 1980 For All Practical Purposes COMAP (180-182, 190)
"remedy for confounding is to do a comparative experiment" (with a control group).
"comparison alone isn't enough to produce results we can trust" randomized comparative
- 1961 Fundamentals of Behavioral Statistics (8th) Runyon, Haber et al. (20)
"Ultimately the goal of any science is to make strong statements such as 'A causes B'."
- 1943 Elementary Statistical Methods Neiswanger (spurious: 645-649)
"Nonsense (spurious) correlation sometimes obtained from time series."

APPENDIX C: NO CONFOUNDING OR RELATED TOPICS (52/80: 65%)

2016	The Teaching and Learning of Statistics.	Ben-Zvi and Makar, Editors
2016	Data Mining for Business Analytics (3 rd)	Shmueli, Bruce and Patel
2014	Official GRE Q-R Practice Questions Volume 1	ETS
2013	Business Statistics	Robert Donnelly, Jr.
2012	Effect Sizes for Research 2nd ed.	Grissom and Kim
2011	Understanding the New Statistics: Effect sizes ...	Geoff Cumming
2010	Essential Guide to Effect Sizes	Paul Ellis
2002	Business Statistics: Concepts and Applications (8 th)	Berenson, Levine & Krehbiel
2002	Statistical Analysis with Missing Data (2 nd)	Roderick Little and Donald Rubin
2000	Elementary Statistics: Picturing the World	Larson and Farber
1998	Statistics for Managers using Excel	Levine, Berenson & Stephan
1998	Statistics for Business and Economics (7 th)	McClave, Benson and Sincich
1997	Quantitative Analysis for Management (2009 10 th)	Render, Stair and Hanna
1997	Applied Statistical Methods for Business, Econ & S/S	Carlson and Thorne
1995	Data Analysis, Regression and Forecasting	Schleifer, Jr. and Bell
1995	An Intermediate Course in Probability	Allan Gut
1994	Statistics for Business Problem Solving (2 nd)	Brightman and Schneider
1994	Quantitative Methods of Decision Makers (5 th)	Mik Wisniewski
1994	Statistical Methods for Medical Investigations (2 nd)	Brian Everitt
1994	A Data-Based Approach to Statistics	Ronald Iman
1994	Statistical Data Analysis: Ocean+Atmospheric Science	J. Jean Thiebaut
1994	Modern Statistics: An Introduction	McNeil, Shaw, et al.
1993	Introduction to Modern Business Statistics	Canavos and Miller
1993	Business Statistics: A Decision-Making Approach	Groebner, Shannon, Fry & Smith
1993	Statistical analysis of circular data	N. I. Fisher
1992	Business Forecasting	Hanke and Reitseh
1992	Statistical Methods for Psychology (3 rd)	Howell
1992	First Course in Business Statistics (5 th)	McClave and Benson
1989	Business Statistics (5 th)	Daniel and Terrell
1988	Essentials of Business Statistics (2 nd)	Daniel
1987	Essentials of Business Statistics	Groebner and Shannon
1987	The Teaching of Practical Statistics	Anderson and Loynes
1986	Statistics: Concepts and Applications	Anderson, Sweeney and Williams
1984	Statistical Decision Models for Management ()	Hanke, Reitsch and Dickson
1983	Beginning Statistics – with Data Analysis	Mosteller, Fienberg, Rourke
1981	Business Statistics: Decision-Making Approach (2 nd)	Groebner and Shannon
1981	Statistical Reasoning for the Behavioral Sciences (2 nd)	Richard Shavelson
1980	Statistical Decision Theory; Bayes Analysis ('85 2 nd)	James O. Berger
1979	Econo-Metrics	Ronald & Thomas Wonnacott
1978	Applied Statistics (2 nd)	Neter, Wasserman and Whitmore
1978	Statistics for Management and Economics (5 th)	Mendenhall et al.
1977	Data Analysis and Regression: 2 nd Course	Mosteller and Tukey
1976	Business Research Methods (4 th)	Emory and Cooper
1970	Decision Analysis: Choices under Uncertainty (2 nd)	Howard Raiffa
1970	Probability and Inductive Logic	Henry Kyburg
1970	Statistical Analysis for Decision Making ('83 3 rd)	Morris Hamburg
1969	Uncertainty and Estimation in Economics: Vol 2	D. G. Champernowne
1968	Statistics for Modern Business Decision Making	Sasaki
1968	Probability and Statistics	Blum and Rosenblatt
1964	Statistics: An Introductory Analysis (2 nd)	TakoYamane
1954	The Foundations of Statistics	Leonard Savage
1938	Statistical Adjustment of Data	W. Edwards Deming

Appendix D lists papers reviewing Jerome Cornfield's contributions to statistics. These papers are classified into four categories based on what they mention: Cornfield's involvement in the "Smoking causes cancer" debate and his derivation of the minimum size confounder needed to nullify an existing association.

Results: Most papers don't include both; very few mention his minimum effect size.

A: Mention both Cornfield's involvement in "Smoking causes cancer" and his derivation

1959-Jrnl-National-Cancer-Inst-22-1-TOC.pdf

B: Mention just Cornfield's derivation

2000-Ency-Epi-Methods-Cornfields-Inequality.pdf

C: Mention just Cornfield's involvement in "Smoking causes cancer"

D: Mention neither Cornfield's involvement in "Smoking causes cancer" nor his derivation

1953-Hill-NEJM.pdf [1953-Hill-NEJM-OCR]

1965-Hill-Proceedings-Royal-Society-Medicine.pdf

1975-Cornfield-JASA-Statisticians-Apology.pdf

1982-Biometrics-Cornfield-Reviews1.pdf

1982-Biometrics-Cornfield-Reviews.pdf

1995-Taubes-Epi-Faces-Its-Limits.pdf

2002-Wainer-Visual-Revelation-BK-plot.pdf

2009-Cox-Commentary-Cornfield-Int-J-Epi.pdf

2009-Greenhouse-Int-Jrnl-Epidemiology-Cornfield.pdf

2009-Greenhouse-JB-Cornfield-Causality-Int-Jrnl-Epidemiology.pdf

2009-Int-J-Epidemiol-Reprint-1959-Cornfield.pdf

2009-Smith-Int-Jrnl-Epidemiology-Cornfield2.pdf

2009-Smith-Int-Jrnl-Epidemiology-Cornfield.pdf

2009-Stanev-Humna-Mente-Epidemiologic-Causation.pdf

2009-Vandenbroucke-Commentary-Cornfield.pdf

2009-Zwahlen-Int-Jrnl-Epidemiology-Cornfield.pdf

2010-Schlesselman-Commentary-Cornfield-1951.doc

2010-Schlesselman-Commentary-Cornfield-1951.pdf

2012-Greenhouse- Statistics-Views-Cornfield.pdf

2013-Agresti-Meng-Strength-in-Numbers-Cornfield-P68.pdf

2013-Agresti-Meng-Strength-in-Numbers-TOC.pdf

2013-Greenhouse-Halpern-Amstat-Cornfield-Tribute-OCR.pdf

2013-Wicklin-SAS-Blogs-Cornfield-Biography.pdf

2013-Wicklin-SAS-Blogs-Cornfield-Biography-OCR.pdf

2014-Biostatistics-Johns-Hopkins-Cornfield.pdf

2015-Schlesselman-Cornfield.pdf

2015-Schlesselman-Cornfield-OCR.pdf

2015-Wikipedia-Jerome-Cornfield.pdf