Morgan (2014) + Endogenous Selection Bias = state of the art
wichtigste Texte

Course „Einführung in Methoden der modernen Kausalanalyse“

Annotated reference list

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Note: The focus of this annotated reference list is on sociological research. This list raises no claim to completeness. Specifically in economics numerous additional theoretical articles as well as applications exist.

Theoretical foundations: Causality and counterfactuals

These articles offer additional details concerning the topics “causality, causal graphs, and the counterfactual model of causality.“ Specifically, the book of Morgan and Winship (2014) is recommend, as it includes a comprehensible introduction to Pearls‘ causal graphs.

Imbens, G. and D. Rubin (2015). *Causal inference for statistics, social, and biomedical sciences*. Ch.1 “Causality: The basic framework“.
Introductory chapter.

Holland, Paul W. 1986. "Statistics and Causal inference." *Journal of the American Statistical Association* 81:945-960.
Seminal article about conceptions of causality across different disciplines. Very good and extensive definitions of key concepts.

Komplex

Empfehlung
Matching/Kausalität nicht so gut

Morgan, Stephen L., and Christopher Winship. 2014. *Counterfactuals and causal inference. Methods and principles for social research*. Cambridge: Cambridge University Press.
Second revised version of the sociological standard textbook on modern causal analysis.

1. Version besser, weniger mathematisch

Erste 3/4 Kapitel sehr gut

Sobel, Michael E. 1995. "Causal Inference in the Social and Behavioral Sciences." Pp. 1-35 in *Handbook of Statistical Modeling for the Social and Behavioral Sciences*, edited by Gerhard Arminger, Clifford C. Clogg, and Michael E. Sobel. New York and London: Plenum Press.
Sociological review of conceptions of causality across different disciplines. Very sophisticated.

Review articles on causal analysis for cross-sectional and/or longitudinal data

These articles provide a general overview about different methods. The article by Winship and Morgan (1999) is recommended in particular.

Blundell, R., L. Dearden & B. Sianesi. 2005. "Evaluating the Impact of Education on Earnings: Models, Methods and Results from the NCDS." *Journal of the Royal Statistical Society Series A* 168:473-512.
The authors, first, introduce different methods of causal analysis for cross-sectional data (regression, matching, IV, selection correction models). They, then, apply these methods to estimate the causal effects of education on income. Very sophisticated..

Blundell, Richard, and Monica Costa Dias. 2000. "Evaluation Methods for Non-Experimental Data." *Fiscal Studies* 21:427-468.

Besides methods for cross-sectional data, this articles also discusses approaches for longitudinal data (diff-in-diff, before-after, ...). The article also contains an example about a job training program.

Gangl, Markus. 2010. "Causal inference in sociological research." *Annual Review of Sociology* 36:21-47.
Very nice sociological review article about different methods for modern causal analysis.

Keele, L. (2015). The statistics of causal inference. A view from political methodology. *Political Analysis*, 23, 313–335.
Review article on different methods for modern causal analysis from the viewpoint of political sciences.

Morgan, Stephen L., and Christopher Winship. 2014. *Counterfactuals and causal inference. Methods and principles for social research*. Cambridge: Cambridge University Press.
Second revised version of the sociological standard textbook on modern causal analysis.

Winship, C., and S. Morgan. 1999. "The Estimation of Causal Effects from Observational Data." *Annual Review of Sociology* 25:659-706.
Excellent, detailed, and comprehensible sociological review article about different methods of causal analysis for cross-sectional and longitudinal data.

Winship, Christopher, and Michael E. Sobel. 2004. "Causal Inference in Sociological Studies." Pp. 481-503 in *Handbook of Data Analysis*, edited by Melissa Hardy and Alan Bryman. London: SAGE Publications.
Excellent, detailed, and comphrensible sociological review article about different methods of causal analysis for cross-sectional and longitudinal data. Some overlap with the previous article, but an additional chapter on conceptions of causality in philosophy and statistics.

Propensity Score Matching

Introductory articles on Propensity Score Matching

Warnung: Kausal-denken noch nicht so ausgeprägt

Numerous introductory articles on matching. For the practicaly implemention, the article by Caliendo and Kopeining (2008) is recommend in particular.

Caliendo, M., and S. Kopeinig. 2008 Some Practical Guidance for the Implementation of Propensity Score Matching. Journal of Economic Surveys, 22(1), 31-72.
Helpful step-by-step guide for the practical implementation of propensity score matching. Illustrates all steps and summarizes the state of art (in 2008) from an applied perspective.

Ho, D., Imai, K, King, G. and E. Stuart (2007). Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference. *Political Analysis* 15, 199-236.
An article on matching from political science.

Morgan, Stephen L., and David J. Harding. 2006. "Matching Estimators of Causal Effects: Prospects and Pitfalls in Theory and Practice." *Sociological Methods and Research* 35:3-60.
Extensive sociological review article on questions about the implementation of propensity score matching.

Besler Gangl 2010
Wirkungsanalytische Schätzung kausaler Effekte mittels Matching
in: Handbuch der sozialwissenschaftlichen Datenanalyse

Sekhon, J. (2009). Opiates for the matches: Matching methods for causal inference. *Annual Review of Political Science* 12, 487-508.
An article on matching from political science.

Smith, Herbert L. 1997. "Matching With Multiple Controls to Estimate Treatment Effects in Observational Studies." *Sociological Methodology* 27:325-353.
Easy and clear introductory article on propensity score matching in US sociology.

Discussions about the empirical validity of matching

These articles provide an interesting debate between two camps in econometrics. Based on LaLonde's (1986) fundamental critique of nonexperimental methods, Dehejia and Wahba (1999) show that matching is capable of identifiying causal effects. On the contrary, Smith and Todd (2005) argue that matching has many problems. These studies should not be generalized to sociological and political science research, as they mostly are concerned with the extreme situation of non-comparable treatment and control groups (e.g, treatment and control groups come from different data sources).

Dehejia, Rajeev H. 2005. "Practical propensity score matching: a reply to Smith and Todd." *Journal of Econometrics* 125(1-2):355-64.

Dehejia, Rajeev H., and Sadek Wahba. 1999. "Causal effects in nonexperimental studies: reevaluating the evaluation of training programs." *Journal of the American Statistical Association* 94(448):1053-62.

Dehejia, Rajeev H. 2002. "Propensity score-matching methods for nonexperimental causal studies." *The Review of Economics and Statistics* 84(1):151-61.

LaLonde, R. J. (1986). Evaluating the econometric evaluations of training programs with experimental data, *The American Economic Review*, **76**, 604-620.

Smith, Jeffrey A., and Petra E. Todd. 2005a. "Does matching overcome LaLonde's critique of nonexperimental estimators?" *Journal of Econometrics* 125(1-2):305-53.

Smith, Jeffrey A., and Petra E. Todd. 2005b. "Rejoinder." *Journal of Econometrics* 125(1-2):365-75.

Propensity score matching: Combined with difference-in-differences

Difference-in-difference

Two very sophisticated review articles on difference-in-differences

Bertrand, M., E. Duflo and S. Mullainathan (2004). How much should we trust differences-in-differences estimates, *Quarterly Journal of Economics*, 249-275.

Lechner, M. (2011). The estimation of causal effects by difference-in-difference methods. *Foundations and Trends in Econometrics*, 4(3), 165-224,

Propensity Score Matching Difference-in-differences

The first article is the foundational theoretical article establishing PSM-DiD. The other two articles are sociological applications.

Heckman, James J., Hidehiko Ichimura, and Petra E. Todd. 1997. "Matching as an econometric evaluation estimator: evidence from evaluating a job training programme." *Review of Economic Studies* 64(4):605-54.

Gangl, Markus. 2006. "Scar effects of unemployment: an assessment of institutional complementarities." *American Sociological Review* 71(6):986-1013.

Gebel, Michael and Jonas Voßemer. 2014. The impact of employment transitions on health in Germany. A difference-indifferences propensity score matching approach. *Social Science & Medicine*, 108:128–136.

Propensity score matching: Biases and Bounds (simulation of unobserved heterogeneity) Rosenbaum bounds
The first two articles are sociological introductions. The third article includes an applications in the annex.

DiPrete, Thomas A., and Henriette Engelhardt. 2004. "Estimating causal effects with matching methods in the presence and absence of bias concellation." *Sociological Methods and Research* 32(4):501-28.

DiPrete, Thomas A., and Markus Gangl. 2004. "Assessing bias in the estiation of causal effects: Rosenbaum bounds on matching estimators and instrumental variables estimation with imperfect instruments." *Sociological Methodology* 34:271-310.

Gebel, Michael. 2009. "Fixed-term contracts at labour market entry in West Germany: implications for job search and first job quality." *European Sociological Review* 25(6):661–75.

Propensity score matching: Combined with event history analysis
The first article is the foundational theoretical article establishing the combination of PSM with event history analysis. The second article is a sociological application.

Sianesi, Barbara. 2004. An evaluation of the Swedish system of active labor market programs in the 1990s, *The Review of Economics and Statistics* 86(1): 133-155.

Gebel, Michael. 2013. Is a temporary job better than unemployment? A cross-country comparison based on British, German, and Swiss panel data. *Journal of Applied Science Studies (Schmollers Jahrbuch)* 133(2):143-156.

Applications of Propensity Score Matching
This is a selection of articles from different sub-fields of sociology.

Brand, Jennie E. 2006. "The effects of job displacement on job quality: findings from the Wisconsin Longitudinal Study." *Research in Social Stratification and Mobility* 24(3):275-98.

Brand, Jennie E., and Charles N. Halaby. 2006. "Regression and matching estimates of the effects of elite college attendance on educational and career attendance." *Social Science Research* 35(3):749-70.

Condron, Dennis J. 2008. "An early start: skill grouping and unequal reading gains in the elementary years." *The Sociological Quarterly* 49(2):363-94.

Gangl, Markus. 2006. "Scar effects of unemployment: an assessment of institutional complementarities." *American Sociological Review* 71(6):986-1013.

Gash, Vanessa, and Frances McGinnity. 2007. "Fixed-term contracts - the new European inequality? Comparing men and women in West Germany and France." *Socio-Economic Review* 5(3):467-96.

Gebel, Michael. 2009. "Fixed-term contracts at labour market entry in West Germany: implications for job search and first job quality." *European Sociological Review* 25(6):661–75.

Gebel, Michael. 2010. "Early career consequences of temporary employment in Germany and the United Kingdom." *Work, Employment and Society* 24(4):641-60.

Harding, David J. 2003. "Counterfactual models of neighborhood effects: the effect of neighborhood poverty on dropping out and teenage pregnancy." *American Journal of Sociology* 109(3):676-719.

Morgan, Stephen L. 2001. "Counterfactuals, causal effect heterogeneity, and the catholic school effect on learning." *Sociology of Education* 74(4):341-74.

IV estimator and selection correction models

Instrumental Variable Estimator

Angrist, J., G. Imbens, and D. Rubin. 1996. "Identification of Causal Effects Using Instrumental Variables." *Journal of the American Statistical Association* 91:444-455.

LATE interpretation of the classical IV estimator in the case of causal effect heterogeneity. A rather technical, but seminal article, that established the re-interpretation of IV estimators and led to their renaissance.

Angrist, J., and A. Krueger. 1991. "Does Compulsory School Attendance Affect Schooling and Earnings." *Quarterly Journal of Economics* 106:979-1014.

Classical example of an (almost) perfect IV (month of birth) for estimating the true causal effect.

Card, D. 1995. "Using Geographic Variation in College Proximity to Estimate the Return to Schooling." in *Aspects of Labour Market Behaviour: Essays in Honour of John Vanderkamp*, edited by L. Christofides, E. Grant, and R. Swidinsky. Toronto: University of Toronto.

An additional example for search after appropriate IVs.

Morgan, Stephen L. 2002. "Should Sociologists Use Instrumental Variables?" in *Winter Meetings of the Methodology Section of the American Sociological Association* Princeton.

The author shows that sociologist have been using IVs for a long time, but gave different names to it. Very nice article that takes away some of the concerns about applying IV estimators in sociology. At the same time the authors warns to use the IV estimators with great care.

Muller, C., Winship, C. and S. Morgan (2014). Instrumental variables regression. In Best, H. and C. Wolf (Eds) *The SAGE Handbook of Regression Analysis and Causal Inference*. London: Sage Publications, pp. 251-276.

Textbook introduction to IV.

Sovey, A and D. Green (2010). Instrumental variables estimation in political science: A readers' guide. *American Journal of Political Science*, 55(1), 188-200.

Introduction to IV and critical review of political science applications.

Selection correction models

Empfehlung →

Fu, Vincent K., Christopher Winship, and Robert D. Mare. 2004. "Sample Selection Bias Models." in *Handbook of Data Analysis*, edited by Melissa Hardy and Alan Bryman. London: SAGE Publications.

Sociological review article about different parametric as well as semi-/non-parametric selection correction models.

Gamoran, Adam, and Robert D. Mare. 1989. "Secundary School Tracking and Educational Inequality: Compensation, Reinforcement, or Neutrality?" *The American Journal of Sociology* 94:1146-1183.

Early application of treatment effect selection models in sociology. Interesting research question about the effects of early tracking in the education system.

Powers, Daniel A. 1993. "Endogenous Switching Regression Models With Limited Dependent Variables." *Sociological Methods & Research* 22:248-273.

Sociological extension of selection correction models for discrete as well as censored dependnet variables.

Vella, Francis. 1998. "Estimating Models with Sample Selection Bias: A Survey." *The Journal of Human Resources* 33:127-169.

Extensive econometric review article on different parametric as well as semi-/non-parametric selection correction models.

Empfehlung →

Winship, Christopher, and Robert D. Mare. 1992. "Models for Sample Selection Bias." *Annual Review of Sociology* 18:327-350.

Sociological review article on different parametric as well as semi-/non-parametric selection correction models