

Assessing the Performance of Matching Methods in Observational Studies

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Abstract

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1 Introduction

2 Literature Review

2.1 Measuring Similarity

2.1.1 Propensity Scoring

Rosenbaum and Rubin, 1983

- The *propensity score* is most often accredited to . . .
- They offer a more general definition of a score: anything affording conditional independence
- Score seeks to replicated randomized trial
- Review of properties (particularly: when can we make unbiased estimates of ATE)
- Proposed use cases

Methods for calculating propensity scores: Garrido et al, 2014 Note: Blocking-based balance metrics

Extensions

- (Optimal) Caliper width: Austin 2011
- Prognostic score: Hansen
- Miettinen score is the root of the above
- Joint use of Prognostic, Propensity, + Mahalanobis, Leacy and Stuart 2014
- Imai and Van Dyk (make sure to include)

2.1.2 (Coarsened) Exact Matching

- Iacus King Porro, 2011: MIB methods
- Iacus King Porro, 2012: Causal inference without balance checking

2.2 Balance Assessment

2.3 Matching Algorithms

3 Experiments

3.1 Data Generation

Papers with data generation:

- Austin 2011 (optimal caliper widths)
- Stuart et al: 2018

4 Results

5 Discussion

6 Conclusion