Propensity Score Matching and Measurement Errors: A Monte Carlo Study

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Abstract

This simulation study compares matching through latent variable and matching through surrogate variables. Two levels of reliability of surrogate variables are examined. Selection bias is simulated on latent variable or/and surrogate variables. Besides factor score matching and Mahalanobis distance matching, two types of propensity score matching are examined. One uses “naïve” propensity score derived from surrogate covariates; the other uses the “true” propensity score derived from factor scores. Results suggest that the effectiveness of latent variable matching is affected by the level of reliability of surrogate variables. Matching through surrogate variables always achieves optimal results. Current results do not suggest that measurement errors on surrogate variables attenuate bias reduction rate.

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