The New Propensity Score Method and Assessment of Propensity Score: A Simulation Study

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Abstract : Propensity score (PS) methods have recently become the standard analysis tool for causal inference in observational studies where exposure is not randomly assigned. Thus, confounding can impact the estimation of treatment effect on the outcome. Due to the dangers of discretizing continuous variables, the focus of this paper will be on how the variation in cut-points or boundaries will affect the average treatment effect utilizing the stratification of the PS method. In this study, we will develop a new methodology to improve the efficiency of the PS analysis through stratification and simulation study. We will also explore the property of empirical distribution of average treatment effect theoretically, including asymptotic distribution, variance estimation and 95% confident Intervals.