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Poster Title: Randomized Controlled Trials and Propensity Score Matching: A Comparison of Savings Estimates

Abstract: The credibility of behavior-based energy efficiency (BEE) programs relies on unassailable, verifiable, and accurate measurement. Randomized Controlled Trials (RCTs) are the gold standard measurement methodology for evaluating BEE programs because they yield unbiased estimates of savings. In cases where RCT implementation is practically challenging, evaluators turn to observational methods of program evaluation whose estimates may include unknown levels of bias. Propensity score matching is one such observational method that is used to evaluate BEE programs. This study considers the potential for group imbalances in unobserved customer-level factors and, leveraging historical Opower Home Energy Report experiments, compares the accuracy of energy savings estimates from multiple propensity score matching models to unbiased estimates of those same programs by RCT.