

Methods for propensity score (PS) calibration are commonly used in missing data analysis. Most of them are derived based on constrained optimizations where the form of calibration is dictated by the objective function being optimized and the calibration variables used in the constraints. Considerable efforts on pairing an appropriate objective function with the calibration constraints are usually needed to achieve certain efficiency and robustness properties for the final estimators. We consider an alternative approach where the calibration is carried out by solving the empirical version of certain moment equalities. This approach frees us from constructing a particular objective function. Based on this approach, under the setting of estimating the mean of a response, we establish intrinsic, improved and local efficiency and multiple robustness in the presence of multiple data distribution models. A revisit to the generalized pseudo exponential tilting estimator and generalized pseudo empirical likelihood estimator of Tan and Wu (2015) is also provided.