

Estimation Simulations - Simple Linear Outcomes

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May 10, 2016

Set simulation parameters

```
set.seed(321)
gamma <- c(1)
B <- 1000
N <- 100
```

1 Comparing Model-based Matching to Other Methods

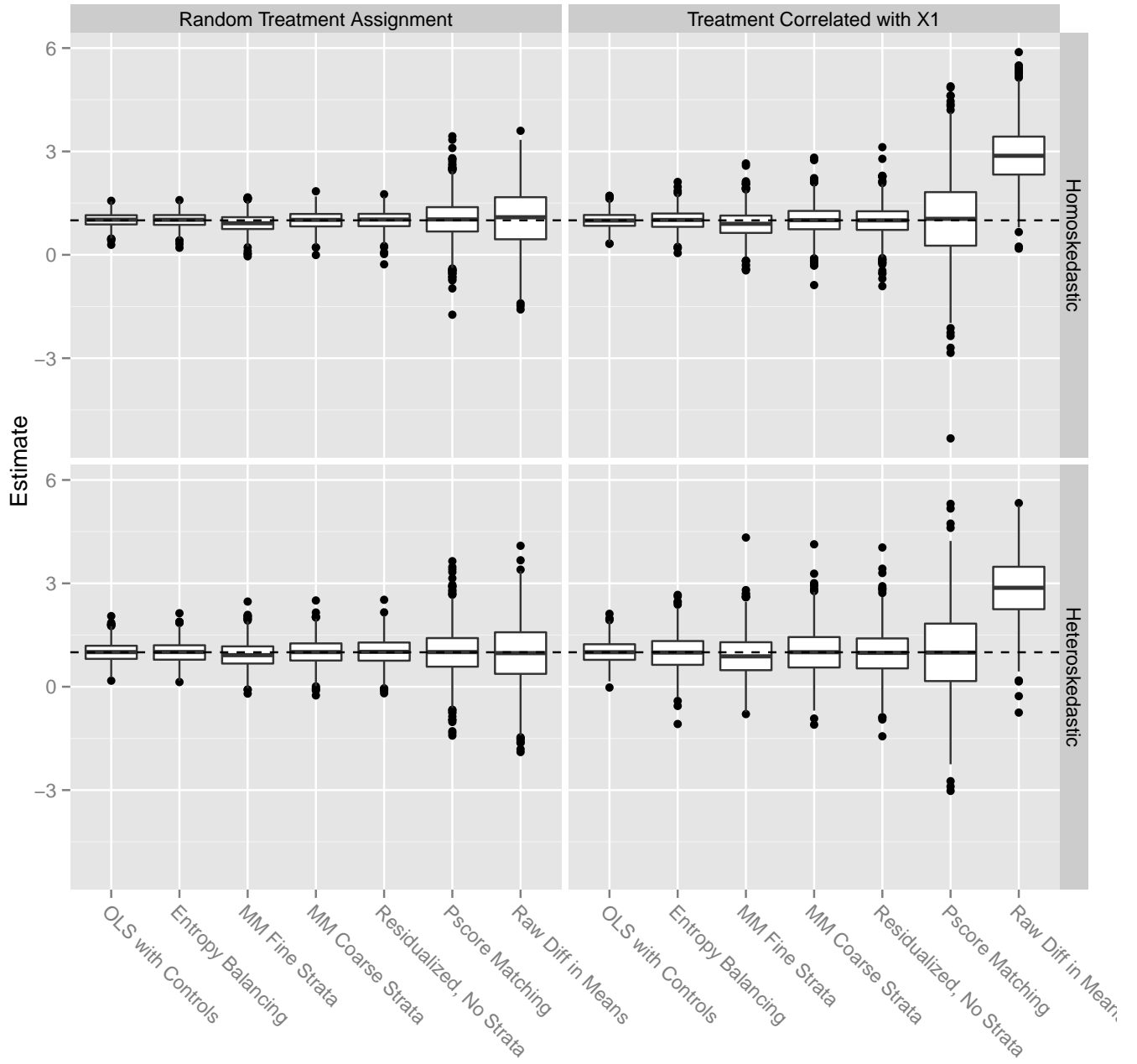
1.1 Constant Treatment Effect

RMSE

| | Homoskedastic | Heteroskedastic | Homoskedastic | Heteroskedastic |
|-------------------------|---------------|-----------------|---------------|-----------------|
| Raw Diff in Means | 0.89 | 0.93 | 2.06 | 2.07 |
| OLS with Controls | 0.20 | 0.29 | 0.23 | 0.34 |
| MM Coarse Strata | 0.26 | 0.38 | 0.42 | 0.67 |
| MM Fine Strata | 0.28 | 0.39 | 0.41 | 0.63 |
| Residualized, No Strata | 0.27 | 0.39 | 0.44 | 0.70 |
| Pscore Matching | 0.61 | 0.68 | 1.19 | 1.19 |
| Entropy Balancing | 0.20 | 0.30 | 0.28 | 0.51 |

Variance

| | Homoskedastic | Heteroskedastic | Homoskedastic | Heteroskedastic |
|-------------------------|---------------|-----------------|---------------|-----------------|
| Raw Diff in Means | 0.79 | 0.87 | 0.76 | 0.79 |
| OLS with Controls | 0.04 | 0.08 | 0.05 | 0.11 |
| MM Coarse Strata | 0.07 | 0.15 | 0.18 | 0.45 |
| MM Fine Strata | 0.07 | 0.15 | 0.15 | 0.39 |
| Residualized, No Strata | 0.07 | 0.15 | 0.20 | 0.48 |
| Pscore Matching | 0.37 | 0.46 | 1.42 | 1.43 |
| Entropy Balancing | 0.04 | 0.09 | 0.08 | 0.26 |



1.2 Heterogeneous Treatment Effect

RMSE

| | Homoskedastic | Heteroskedastic | Homoskedastic | Heteroskedastic |
|-------------------------|---------------|-----------------|---------------|-----------------|
| Raw Diff in Means | 1.05 | 1.08 | 2.55 | 2.59 |
| OLS with Controls | 0.20 | 0.29 | 0.24 | 0.32 |
| MM Coarse Strata | 0.33 | 0.43 | 0.54 | 0.77 |
| MM Fine Strata | 0.33 | 0.43 | 0.47 | 0.68 |
| Residualized, No Strata | 0.36 | 0.46 | 0.69 | 0.85 |
| Pscore Matching | 0.63 | 0.71 | 1.31 | 1.29 |
| Entropy Balancing | 0.29 | 0.37 | 0.60 | 0.72 |

Variance

| | Homoskedastic | Heteroskedastic | Homoskedastic | Heteroskedastic |
|-------------------------|---------------|-----------------|---------------|-----------------|
| Raw Diff in Means | 1.10 | 1.17 | 0.95 | 0.95 |
| OLS with Controls | 0.04 | 0.08 | 0.06 | 0.11 |
| MM Coarse Strata | 0.11 | 0.19 | 0.24 | 0.52 |
| MM Fine Strata | 0.10 | 0.18 | 0.20 | 0.42 |
| Residualized, No Strata | 0.13 | 0.21 | 0.25 | 0.48 |
| Pscore Matching | 0.40 | 0.50 | 1.42 | 1.43 |
| Entropy Balancing | 0.08 | 0.14 | 0.12 | 0.26 |

