

Segment 3: Causal Inference with Regression (in randomized studies)

Section 05: Putting it All Together: Electric Company

Electric Company Example

From Gelman, Hill, Vehtari

Study of an educational experiment undertaken around 1970 on 192 elementary school classes.

- ▶ Units: classes, $i = 1, 2, \dots, 192$ of children in grades 1-4
- ▶ Treatment (Z): A new educational television program, The Electric Company
 - ▶ ~~Matched pairs randomized design that randomized 2 classrooms within each of many schools~~
 - ▶ Treat as a completely randomized design for illustration
- ▶ Outcome (Y): Average classroom reading test score at the *end* of the school year
 - ▶ “post-test”
- ▶ Covariates, \mathbf{X} :
 - ▶ Grade level, $X_1 \in \{1, 2, 3, 4\}$
 - ▶ “Pre-test” classroom average reading test score, X_2