Electric Company Study: Supplemental Materials

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Here we document the decision making process for modeling the Electric Company Study. The code, data. and documentation for this study can be found on the project website at: https://github.com/auqmer/electric_company_Example.

```
source("code/prepare_WideElectricCompanyData.R")
```

```
source("code/analyze_electricCompany.R")
```

Analysis of Covariance without and with interaction

To model the impact of exposure to the program, an analysis of covariance was estimated with pre-test as a covariate. This was followed by including an interaction term to see if the relation between pre-test and post-test was different across conditions.

Model Comparison

To formally test the two models, we conducted a likelihood ratio test. The results are given below.

```
kable(anova(ancova, ancovaX), digits = 2)
```

Res.Df	RSS	Df	Sum of Sq	F	Pr(>F)
189	12199.63				
188	11890.62	1	309.02	4.89	0.03

Below we display both models, noting that the second model was found to be the better fitting model.

```
texreg(list(ancova, ancovaX))
```

	Model 1	Model 2
(Intercept)	61.56***	58.89***
	(1.47)	(1.89)
pre_test	0.46***	0.50***
	(0.02)	(0.02)
conditiontreatment	4.73***	10.15***
	(1.16)	(2.71)
pre_test:conditiontreatment		−0.08*
		(0.03)
R^2	0.80	0.80
Adj. R^2	0.80	0.80
Num. obs.	192	192

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table 2: Statistical models