Assignment 2

Due noon Saturday 6/28

ICPSR Session 1 (June 20, 2025)

The table at right comes from Albertson and Lawrence's (2009, *Amer. Pol. Res.* **37**/2) paper "After the credits roll: The long term effects of educational television on public knowledge and attitudes," which reported on two field experiments. Besides being thematically related, the two experiments followed very similar designs, using random digit dialing (RDD) telephone sampling to recruit initial samples, then employing a randomized encouragement design. Common methods estimate the CACE (LATE) under the following assumptions:

- Random assignment: $\Pr(Z_i = 1)$ = constant over study population; and Z is determined by coin tosses, card shuffles or equivalent methods
- Excludability (for all z, d, $y_{Z=z,D=d} \equiv y_{D=d}$)
- $p_c = \Pr(\text{Complier}) > 0$
- No interference
- Monotonicity (no defiers)

Table 1
Summary Statistics for Both Studies

	Study 1: PBS, *Moyers on Addiction: Close to Home*	Study 2: *Fox News*, "Channel 11 Special on Proposition 209"
Format of broadcast	Documentary	Expert debate
Duration of broadcast	5.5 hr over 3 consecutive evenings	0.5 hr
Location of broadcast (sample)	National (5 metropolitan areas)	Orange County, California
Date of broadcast	March 29–March 31, 1998	Nov 4, 1996
Date of Round 2 survey	April 10–April 28	November 18–December 2
N in Round 2	1089	507
Percentage successfully contacted for Round 2	80	63
Number in treatment group	510	259
Number in treatment group who watched	244	117
Number in control group	579	248
Number in control group who watched	74	11

Note: PBS = Public Broadcasting Service.

1. Assuming (for this question) that the IV assumptions are valid as applied to the Round 2 respondents of each experiment, estimate the ACE (Average Causal Effect) of encouragement to view the program on program viewing.

2. For one of the experiments, describe a hypothetical outcome variable that you would have collected had you written the study questionnaire. Posit a hypothetical value for your estimated ACE of encouragement on this outcome; combine this and your answer to (1) to furnish a (hypothetical) Bloom-type estimate (estimated ITT/estimated proportion compliers) of the complier average causal effect (CACE).

3. We use R to indicate whether a subject responds at round 2. Whether a person responds can be considered as a (secondary) outcome. Let r_{Ti} be an indicator of whether subject i would respond at round 2 if assigned to the encouragement condition, with r_{Ci} denoting i's corresponding potential response if assigned to control.

   (a) Despite proper use of random assignment procedures during Round 1, the possibility that, for many individuals, $r_T = 1$ (would respond if assigned treatment) while $r_C = 0$ (would not respond if assigned control) poses a threat to inference among *Round 2* respondents. We can see that the total number of valid observations for Table 3 and Table 4 differ somewhat from the total number of those assigned to treatment and control. The authors do not drop observations based on missing covariates (as they explain in a footnote about using dummy variables for missingness on covariates). So, these differences in numbers reflect missing outcomes rather than a simple average of unobserved potential outcomes. Explain why. (It might help to think about how the ITT is defined as a difference between average potential outcomes among those assigned treatment versus among those assigned control, and how "Always-Reporters" and "If Treated Reporters" might differ from each other in regards potential outcomes.)

   (b) Conversely, explain how for a study population of Round 2 respondents, random assignment at round 1 plus the additional assumption that $r_{Ti} \equiv r_{Ci}$, all i, alleviates this threat to inference.

4. Which study's instrument is weakest, the Arceneaux 2005 (Acorn) study, Albertson and Lawrence's (2009) Study 1 (PBS program) or A. & L.'s (2009) Study 2 (Fox News program)? Briefly justify your answer.