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Assignment 5

1.

(a) Experiment: “A quick (7min) study about consumer choices and relationship decisions”

(b) The reward is $0.75 for completing the whole survey.

(c) It is eligible for U.S citizenships or permanent residents who are currently in a romantic relationship.

(d) The expected time is 7 mins. Hourly rate: $6.4 ($\frac{\$0.75}{7}$ *60)

(e) It expires on Nov 7th.

(f) $750,000

2. Response to Costa and Kahn (2013)

The research question that Costa and Kahn (2013) proposed is: “What’s the role of ideology in energy conservation “nudges”? ”

There are several data sources for this research. The core one is “residential billing data from January 2007 to October 2009”, which contains information on energy consumption and types of energy purchased (Costa & Kahn, 2013, p. 685). The authors also purchased the data “individual voter registration and marketing data for March 2009” to identify the political affiliation and donation amount to environmental organizations of half households in the sample (Costa & Kahn, 2013, p. 685). An ancillary data they accessed help them look into the household’s ideology from HER (Home Energy Report) (Costa & Kahn, 2013, p. 685).

In the HER experiment, the control group consists of “49,000 households who have never received a HER”, while the treatment group is around 35,000 households who received HER from the electric utility during March 14th to May 9th, 2008 (Costa & Kahn, 2013, p. 683). The treatment is receiving monthly or quarterly HER with their and peers’ electricity consumption information from the electric utility.

Schultz et al. (2007) controlled the participants' heterogeneity by whether they were "above or below the average of the energy consumption" (p. 430). Costa and Kahn (2013) added extra layers for controlling heterogeneity, such as being an electric home or not, characteristics of community blocks and houses, etc.

Costa and Kahn (2013) found that liberal households are more willing to receive HER reports on peer comparisons information and consequently reduce electricity consumption, compared with conservatives.

Reference:

Costa, D., Matthew, K. (2013).Energy Conservation Nudges and Environmentalist Ideology: Evidence from a Randomized Residential Electricity Field Experiment. *Journal of the European Economic Association*, *11* (3), 680–702.

Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological science, 18*(5), 429-434.

3.(a)

In this experiment, the treatment group is the ones receiving text messages and the controlled group is the ones who don't receive messages. The treatment is sending the messages to remind them taking the vaccination. The research question is the effect of sending such messages. Given the budget constraint, researchers have to decide how to allocate the resources. One option is to focus on a small number of clinics, which enables researchers to observe larger amounts of patients within each clinic. The conditions are that all patients are identical and there are few or none other unobserved factors that lead to the potential outcome.

However, this option always fails to satisfy the "no interference" and "excludibility" for "Stable Unit Treatment Value Assumption" (Salganik, 2018, p 203-209). For example, if spatially some patients live in wealthy neighborhoods while some live in the slums, researchers will get wrong estimates of the effect by observing a limited amount of clinics because the income level affects patients' vaccination uptake decisions. Thus, the second option is to spread the resources widely. This randomization in dividing the treatment and control group could balance the unobserved factors among patients and clinics so that we could expect to get unbiased estimates.

3(b)

The smallest effect size depends on the precision level researchers want. If we are using the difference-in-means estimator, we might want to decrease the standard error of the average treatment effect to a certain level by increasing the number of patients. Another factor is the estimator and research design we use to approximate the effect. For example, if we use the difference-in-differences approach, we can use the vaccination uptake data of these patients in the last year as the control group, and the changed uptake rate after receiving the messages as the treatment group to estimate the intervention effect.

Reference

Salganik, M., (2018). *Bit by Bit: Social Research in the Digital Age*, Princeton University Press.