1. Experiments on Amazon Mechanical Turk (3 points).

(a) Search for an experiment on MTurk that interests you. (Hint: You might want to \Search all HITs" for a job or project that has the word \experiment" in it.)

The experiment with the title “Collect Flight Availability on Delta.com” seems interesting to me. The description of this experiment is “Search for flights on Delta.com and collect the prices in $USD and in miles”.

(b) Describe the full payment structure of this experiment. That is, the reward column says an amount, but there is a lot more information available as to what that amount means.

You will earn $0.10 after you successfully accomplish this experiment once. For this experiment, you may not get paid if your submission doesn’t contain “either a) the entire html element for both MILES and $USD results or b) the words "NO DATA”.

(c) Describe any qualifications, eligibility requirements, or restrictions (or lack thereof).

Firstly, as I described in part b), the submission should contain the prescribed information. Also, if your submission contains the information about miles and prices, you should fill in prior to completing this experiment. And the submission responses must be in English. Other languages are not acceptable.

(d) How long does this job take? What is the implied hourly rate (dollars per hour)?

This job will take 10 minutes to complete. Therefore, the implied hourly rate is $0.60.

(e) When does this job expire?

This job will expire at 06:45pm on 11/17/2018.

(f) What is the most this project would cost the HIT experiment creator if 1 million people participated in the task?

This project will cost the creator $100,000 if 1 million people participated in the task.

2. Costa and Kahn (2013) (4 points).

(a) State the research question of this paper in the form of a question and in one sentence?

The research question of this paper is does the political ideology have influence on people’s reaction on the electricity conservation “nudge”?

(b) The data for this study came from at least two sources. Name the sources, and describe the data.

The primary data set of this paper “consists of residential billing data from January 2007 to October 2009(Costa and Kahn, 2013)”. The data set provides us the consumption information and “whether the household is enrolled in the electric utility's program to purchase energy from renewable sources (Costa and Kahn, 2013)”. Then, the author combined this information with “when the household began to receive the Home Energy Reports (Costa and Kahn, 2013)” and their basic house information such as the size, age and the energy type. The author also used “individual

voter registration and marketing data for March 2009 (Costa and Kahn, 2013)" to get the voters' party affiliation information and their connections to the environmental organizations. They also "have access to an ancillary data set which they use to examine household attitudes about the HER by ideology (Costa and Kahn, 2013)".

(c) Define and describe the control group and the treatment group in this study. What was the treatment?

For the HER Experiment, they selected the households from "85 census tracts with a high density of single-family homes (Costa and Kahn, 2013)". They also set the threshold for the subjects: "Both treatment and control households had to have a current account with the electric utility that had been active for at least one year, could not be living in apartment buildings, and had to be living in a house with square footage between 250 and 99,998 square feet (Costa and Kahn, 2013)".

The treatment is the households will receive a report containing her absolute level of consumption and the descriptive comparation of 100 neighbors living in similar-sized homes on a quarterly or monthly basis. The treatment group is around 35,000 households who received the first Home Electricity Reports between March 14 and May 9, 2008. And the control group is "roughly 49,000 households who have never received a Home Electricity Report. (Costa and Kahn, 2013)"

(d) Beyond the previous work of Schultz et al. (2007), what extra layer of participant heterogeneity did Costa and Kahn control for in order to answer their research question?

The previous paper includes the variable to measure "whether the households were initially above or below the average level of energy consumption in their neighborhood (Schultz et al. 2007)". In Costa and Kahn (2013), they add more control variables such as "month/year fixed effects", "mean daily temperature within the billing cycle", "a dummy indicator if the house is an electric house (Costa and Kahn, 2013)". Also, they put the interaction term using "party registration, green indicators, individual characteristics, block characteristics, and house characteristics" with an indicator "for whether the treatment period has started (Costa and Kahn, 2013)".

(e) What was Costa and Kahn's finding?

This paper finds that people's ideology has some influence on people behaviors and reactions on the electricity conservation "nudge". "Liberal households are less likely to drop out of the experiment and more likely to report that they like receiving the report than political conservatives. In response to receiving the report, liberals reduce their electricity consumption by a larger percentage than conservatives. Our results suggest that environmental nudges are most effective in relatively liberal communities. (Costa and Kahn, 2013)"

References:

Costa, Dora L. and Matthew E. Kahn, "Energy Conservation Nudges and Environmentalist Ideology: Evidence from a Randomized Residential Electricity Field Experiment," Journal of the European Economic Association, June 2013

Schultz, P. Wesley, Jessica M. Nolan, Robert B. Cialdini, Noah J. Goldsteinand, and Vladas Griskevicius, "The Constructive, Destructive, and Reconstructive Power of Social Norms," Psychological Science, 2007

3. Analytical exercise (3 points).

(a) Under what conditions might it be better to focus your resources on a small number of clinics and under what conditions might it be better to spread them more widely?

For this experiment, there is a fixed cost of $100 for each clinic and it will cost $1 to send the text message. Given the limited funding, we should make effective use of our resources unless some experimental principles are violated. Salganik (2018, pp. 206) mentions the term SUTVA, and the first part of it is to make sure that "the only thing that matters for person i's outcome is whether that person was in the treatment or control condition". If we want to focus on a small number of clinics, we need to assure that those patients for this clinic will not communicate with each other about the vaccination uptake reminders. For those patients who are fixed to a clinic, it is very normal to know and communicate with others. In this case, it is better for us to spread the clinics more widely. If in the previous research, we found that patients did not talk with each other. For the sake of saving resources, we could focus on a small number of clinics.

(b) What factors would determine the smallest effect size that you will be able to reliably detect with your budget?

I think it's the precision level. If we want to use the difference-in-means to estimate the standard error, for this experiment, we need to set the number of patients in treatment group and in control group are very close to lower the standard error. We could also use the difference-in-difference estimator, "which can lead to a smaller variance than a difference-in-means estimator Salganik (2018, pp. 208)".

Reference:

Salganik, Matthew J., Bit by Bit: Social Research in the Digital Age, Princeton University Press, 2018.