

1. Experiments on Amazon Mechanical Turk

(a) Search for an experiment on MTurk that interests you.

I am interested in an investment experiment created by Fynn Gerken. It is an academic investment experiment that involves viewing material and answering three related qualification questions.

(b) Describe the full payment structure of this experiment.

The flat rate of payment is \$0.50. The worker need to answer 3 questions and will get bonus rewards of \$0.25 per correct answer.

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

The eligible participants are those who (1) have not been granted previous participation; (2) have a HIT approval rate (%) is over 95; (3) currently stay in the United States.

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

This job takes roughly ten minutes to finish. The hourly rate is \$3-7.5.

(d) When does this job expire?

This job expires on December the 3rd.

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

The maximum cost of this project would be $(0.5 + 0.25 \times 3) \times 1,000,000 = 1.25$ million dollars.

2. Costa and Kahn (2013)

Costa and Kahn (2013)'s study seeks to answer the research question: how does political ideology influence the households' reaction to an "energy conservation nudge"? To address this puzzle, the authors combine several datasets, in which the major one is the "residential billing data from January 2007 to October 2009", which contains "information on kilowatt hours purchased per billing cycle, the length of the billing cycle (measured in days), whether the house uses electric heat, and whether the household is enrolled in the electric utility's program to purchase energy from

renewable sources” (Costa and Kahn 2013, p.685). Another important dataset adopted by them is the “individual voter registration and marketing data for March 2009” purchased from www.aristotle.com (ibid.). This dataset provides information on party affiliation and individual donations to environmental organizations.

In Costa and Kahn (2013)’s experiment, the control group consists of roughly 49,000 households that never received a Home Energy Report (HER). The treatment group includes approximately 35,000 households that received a HER. The treatment here is receiving a HER that informs a household of its “own monthly electricity usage over time and relative to neighbors’ usage over the same time period.” (ibid. p.682)

Schultz et al. (2007)’s study only controls for the above or below average energy consumption. Beyond this previous work, Costa and Kahn (2013) add a variety of control variables to their model, including the electric house/non-electricity house dummy variable, individual, house and community block characteristics, and the variable identifying whether the mean daily temperature falls within the billing cycle, etc..

Costa and Kahn (2013)'s findings confirm their hypothesis that political ideology exerts influence on people’s reactions to the energy conservation nudges. Specifically, they find that households with liberal ideology are more willing to receive the HER and more responsive to HER in changing their behavior, namely, reducing the electricity consumption, than their conservative counterparts.

3. Analytical exercise

(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?

The resources allocation decision can be made based on the principle of the Representativeness: the sample for the experiment should represent the whole population. Under this concern, if the patient composition of all clinics are highly homogeneous, in other words, the whole population can be represented by just a few clinics, I would focus my resources on a small number of clinics. In contrast, if the

characteristics of patients in different clinics diverge hugely, I would spread my resources more widely in order to reduce sample bias.

It is also reasonable to consider the prevention of spillover effects as one underlying rule for the decision-making process. If the patients in the same clinic are familiar with each other and tend to talk to each other about health-related issues, I would spread my resources to more clinics in order to prevent the control group from being influenced by treatment, since a treatment group member could accidentally inform a control group member in the same clinic of the vaccination message and consequently influence the control group member's behavior regarding vaccine taking.

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

To start with, sample size affects the detection of the smallest effect size. Through increasing the sample size, the standard error will decrease and the measured treatment effect will be more precise, allowing for the detection of the smaller effect. In addition, the research design also acts as a determinant of the smallest effect size. With the same sample size, the difference in difference approach works better in detecting treatment effect than the difference in means approach. By adding a temporal dimension, the difference in difference approach manage to control for the variance between the control and treatment groups, and therefore makes it easier to identify the smaller treatment effect.