Essay 2: Testing the Impact of Prizes on Charitable Giving

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Introduction

In a few weeks, the Houston Rockets will host a telethon to raise money for the Clutch City Foundation, the official charity of the team's owner, Leslie Alexander. The event will be televised live from Toyota Center, where fans will also be able to participate in various fun activities on the court in exchange for donations. Former Rockets players and other Houston notables will also come out to support the event. Viewers watching from home will be able to call in to donate to the foundation as well. The proceeds will benefit a number of non-profit organizations that support causes for children in the Houston metro.

Our Community Relations team will be running the event, and they want to know what they should do to maximize the donations collected in-person from fans at the arena, on our website, or by phone. The answer could include a number of elements in the event, such as the selection of charities, inclusion of athlete and celebrity endorsements in the TV broadcast, and awarding of prizes to donors. This study will explore the last of these elements and answer the question of whether or not offering prizes will increase the amounts that people are willing to donate. This question is compelling primarily because it will help our organization to better program this event and other initiatives designed to raise money to help children and the Houston community overall. Furthermore, from a technical perspective, the set of prizes awarded and strategies for awarding them are easy to manipulate, thus lending themselves to experimentation.

Experimental Design

Our subjects will be drawn from existing Rockets fans and customers, which include people who have (1) purchased tickets to Rockets games, (2) subscribed to mailing lists for our news and offers, (3) visited our website, or (4) followed us via social media. The experiment will involve an initial screening of potential subjects, followed by the actual treatment and observation a few weeks later.

The goals of the screening process are to collect contact information for potential subjects who are currently unreachable, such as visitors to our website and measure covariates that will be used for block design. The screening will consist of a simple sweepstakes offering potential subjects the chance to win a prize in exchange for filling out an entry form. The entry form will ask candidates for their contact information as well as a small number of questions asking for demographic information (age, gender, race), past purchases with the Rockets tickets and merchandise, and a self-assessment

of affinity toward the Rockets (Likert scale for different statements). Candidates will also be asked to subscribe to various Rockets mailing lists, one of which will be for news about the Clutch City Foundation and the causes that it supports. We will select subjects for our experiment from this list of opt-ins.

The outcome of interest is the amount that a person pledges to donate. The treatment effect is the difference between the mean pledged amounts for the treatment and control groups. The experimental treatment will be communication about a major sweepstakes for people who pledge donations to the Clutch City Foundation. All subjects will be sent an email with a call-to-action asking them to pledge a donation online. The email will have a link to the donation page, where subjects will enter in the amount that they want to pledge. The control group will receive no communication about the sweepstakes at any point; the treatment group will be exposed to promotional content for the sweepstakes, both in the email and on the donation page.

Randomization of Treatments

Blocked random assignment will be used to place subjects into the treatment and control groups, with blocks designed around the covariates that we measure during the screening process. Within each block, complete random assignment will be used for assigning treatment. We will randomize with the same method that we have used in class: take a random sample from a vector containing half 1s and half 0s. The sample size will equal the number of subjects.

The table below shows a potential block design with age, gender, and whether or not someone purchased Rockets tickets in the last 3 months:

	Age: under 40	Age: 40 or older	
Male	**Block 1**	**Block 2**	Bought tickets last 3 months
Female	**Block 3**	**Block 4**	
Male	**Block 5**	**Block 6**	No tickets in last 3 months
Female	**Block 7**	**Block 8**	

Statistical Analysis

The primary outcome of interest will be the amount that each person pledges to donate to the foundation. A difference-in-means estimator will be used to calculate the average treatment effect. To establish causality between offering prizes and an increase in pledged amounts per person, we will use randomization inference. Based on the observed treated and untreated outcomes within each block, we will first simulate

the sampling distribution of the ATE. We will then calculate the estimated ATE within each block and calculate its p-value based on the sampling distribution from earlier. If we observe a p-value less than 0.05, then the ATE is statistically significant. We will also calculate the effect size of the observed ATE, as well as a 95% confidence interval to see how precise our estimated ATE is.

An alternative method for estimating the treatment effect and controlling for factors that could be predictive of the treatment outcome would be regression with covariate adjustment. This would be easier to execute and would sidestep the issue of certain blocks having insufficient numbers of subjects.

Pilot Study,

A pilot would consist of administering the survey to a small group of individuals from the different subpopulations we are sampling (ticket buyers, website visitors, email subscribers, and social followers). This would give us an initial response and completion rate as well as a profile of covariates for each group, which would help us to estimate how many people we should send the survey to ensure that we have a large enough sample for blocked random assignment. The initial read of covariates would also alert us to any major patterns that could introduce bias, such as the age of social media followers skewing young or the income of ticket buyers skewing high. We could then decide whether or not to design blocks with these covariates or include them in regression models with covariate adjustment.

Risks to Experiment

One of the biggest risks for the experiment is if subjects give inaccurate responses for the amount they would pledge, relative to what they actually would in reality. This would affect the accuracy and generalizability of the results, meaning that we might not actually observe a lift in donations were we to reproduce the treatment on a larger scale during the actual telethon. Another risk is ineffective blocking due to inaccurate responses to the screening questions for covariates. This could hurt the precision of our estimates of the treatment effect by allowing bias from factors that are predictive of donation amounts. However, we can probably reduce this risk with the results of the pilot study. Also, if the survey respondents complete the survey at different points in time, say over the course of weeks, then other factors that change across time (receiving tax refunds or end of year bonuses) could impact the pledged amounts. Lastly, if we include too many blocks in our experiment, we could have insufficient samples in certain blocks which would reduce what we learn from our experiment.