

## **MARKETING SCIENCE**

### **Individual Assignment (30% of overall mark)**

The goal of this assignment is to practice estimating advertising effect based on data collected from a field experiment.

Please complete the following questions based on Case: “Rock Fuel: Measuring the Effectiveness of Online Advertising”. You will need the data “Data\_Rocket Fuel.xlsx”.

You can use any software for your calculation, and answer the following questions:

1. (30 points) Was the advertising campaign effective? Did additional consumers convert as a result of the ad campaign?
2. Was the campaign profitable?
  - a. (10 points) How much more money did TaskaBella make by running the campaign (excluding advertising costs)?
  - b. (5 points) What was the cost of the campaign?
  - c. (5 points) Calculate the ROI of the campaign. Was the campaign profitable?
  - d. (10 points) What was the opportunity cost of including a control group; how much more could have TaskaBella made with a smaller control group or not having a control group at all?
  - e. (10 points) If it is costly to include a control group, why is the control group necessary for this experiment?
3. How did the number of impressions seen by each user influence the effectiveness of advertising?
  - a. (5 points) Create a chart of conversion rates as a function of the number of ads displayed to users. Plot conversion rates for those who were in the control group and for those who were exposed to the ad. Group together number of impressions as necessary to obtain a meaningful plot. (Conversion rate means the percentage of unique users who made a purchase).
  - b. (5 points) What can you infer from the charts? In what region is advertising most effective?
  - c. (5 points) What do the above figures imply for the design of the next campaign assuming that consumer response would be similar?
4. How does consumer response to advertising vary on different days of the week and at different times of the day?
  - a. (5 points) Create a chart with the conversion rates for the control group and the exposed group as a function of the day of week when they were shown the most impressions.
  - b. (5 points) Create the same chart for hours within a day (excluding the period between midnight and 8 a.m.).
  - c. (5 points) What days/hours is advertising most/least effective?

