Home Assignment: Individual Based

Basic Analyses

▬ Task 1:

After completing an online survey, participants were notified that they would get the *Economist* magazine as a reward. Later, they were inquired for their satisfaction with receiving the reward for working on the survey.

Before reporting their satisfaction, participants were randomly assigned to one of the following two treatments in a between-subjects experimental design.

(1) One issue treatment

> This research is part of the course. However, assume it was carried out by a profit-making company. The company is considering offering ONE of the two latest issues of *Economist* magazine as reward to the participants.
> The listed price of *Economist* magazine is about US $3.00/ issue.

(2) Two issues treatment

> This research is part of the course. However, assume it was carried out by a profit-making company. The company is considering offering TWO issues of the latest *Economist* magazine as reward to the participants.
> The listed price of *Economist* magazine is about US $3.00/ issue.

The data collected in this experiment (*N*= 409) are store in "Data_Magazine.csv". The key variables of interest[1] are as follows:

Copies: A participant may receive either one or two issues of the *Economist* magazine as the reward. This variable records the experimental treatment assigned to each participant. It has two categories: "one copy" or "two copies."

Satisfy: It is a 7-point scale. The measurement item used in the questionnaire is "If you would receive the *Economist* magazine[2] as the reward for taking this research, how satisfied would you be?" (1= completely dissatisfied; 7= completely satisfied)

Gender: sex of the respondents, *i.e.*, female or male

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[1] Variable "V1" denotes the ID of each participant.
[2] Either one issue or two issues

Questions to answer:

(1.1) Are the respondents more satisfied when they are rewarded with two issues rather than one issue of *Economist* magazine?

(1.2) Are female or male respondents more satisfied with reward they receive?

(1.3) Simultaneously analyze the main effects of (1) "Copies" (one vs. two issues) and (2) "Gender" (female vs. male) and their interaction effect on participants' satisfaction with the reward. Interpret the results.

≡ Task 2:

One way to measure brand loyalty and competition structure is to study brand-switching data. Regarding a specific product category, a customer of "Brand A" is planning to replace the existing product in the next purchase.

(1) If she buys a new product of "Brand A" in the repurchase, she would be termed as a loyal customer of "Brand A".

(2) If she buys a new product of "Brand B," she has switched from "Brand A" to "Brand B" after the repurchase. Therefore, "Brand B" is competing against "Brand A", and has successively won this customer in the competition.

By aggregating the repurchase decision of all existing customers of "Brand A", percentage of customers staying with this brand in the repurchase indicates the degree of brand loyalty for "Brand A." Percentage of customers switching to "Brand B" indicates the competitive disadvantage of "Brand A" relative to "Brand B" if we interpret it as the weakness in customer retention. In contrast, it is absolutely possible for "Brand A" to attractive some new customers in the repurchase. Percentage of customers switching from "Brand B" to "Brand A" in the repurchase thus represents the competitive advantage of "Brand A" over "Brand B" in terms of customer acquisition.

Competition relations revealed in brand switching data do not have to be symmetric. For example, "Brand A" loses a large proportion of existing customers to "Brand B" in the repurchase but acquires a small proportion of new customers from "Brand B." Meanwhile, "Brand A" acquires a large number of new customers from "Brand C" but loses a small number of existing customers to "Brand C" in the repurchase. Under this situation, the competitive relationship between neither "Brand A" and "Brand B" nor "Brand A" and "Brand C" is asymmetric.

Besides actual purchase behavior records, brand-switching data can also been collected in customer surveys. Students in this course had been asked to participate in a conjoint study on

how people buy tablet computers. The study has been shared to each student on Qualtrics platform. Besides the conjoint task, each respondent indicated their brand-switching intention toward five tablet computer brands (*e.g.*, Apple iPad, Samsung Galaxy Tab, Lenovo IdeaPad, Asus EeePad, and Motorola Xoom) in five similarly phrased questions. In each question, respondents were required to speculate what another consumer would do, who'd like to buy "Brand A" but found that it happened to be out of stock. Given this situation, would this consumer choose to wait for "Brand A" or switch to some other brands, *e.g.*, "Brand B", instead?

For example, when "Brand A" is Apple iPad and the other four brands are "Brand B", this single answer, multiple choice item is presented to the respondents as follows.

If a consumer plans to buy an <u>Apple iPad</u>, but finds that it is out of stock at the moment. According to your judgment, in this situation, which tablet computer brand she or he is most likely to choose?

(1) Wait until <u>Apple iPad</u> is available again
(2) Switch to <u>Samsung Galaxy Tab</u>
(3) Switch to <u>Lenovo IdeaPad</u>
(4) Switch to <u>Asus EeePad</u>
(5) Switch to <u>Motorola Xoom</u>

If a respondent chooses (1), we know that she is loyal to "Apple iPad" because she switches from "Apple iPad" to "Apple iPad". However, if she chooses (2), we know that she is not loyal to "Apple iPad" because she switches from "Apple iPad" to "Samsung Galaxy Tab", a different brand. In other words, we can conclude that "Apple iPad" is competing against "Samsung Galaxy Tab", at least for this consumer, and demonstrates its weakness in customer retention.

The data (*N*= 222) are stored in "Data_Switching.csv", and the two variables[3] related to the question for you to answer are,

Switch_From: The brand favored by the consumer but not available. This categorical variable includes five values corresponding to the five brands. It denotes the "Brand A" from which the consumer would switch the brand choice.

Switch_To: The brand that the consumer would switch to when the favored brand is out of stock. It denotes the "Brand B" chosen by the consumer. This categorical variable is coded in the same way as the variable "Switch_From".

The responses of each participant to the five questions are recorded in five rows. The value of "Switch_From" in each row for each participant corresponds to the "Brand A" in each question, respectively.

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[3] In addition, variable "V1" denotes the ID of each participant.

Questions to answer:

(2.1) The responses made in these five questions can reveal the substitutability between these five brands in the customers' perspective. Therefore, you can investigate the strength of loyalty for each brand and the competitive relations between these brands. Interpret the results of your analysis and summarize the marketing management implications.

Note:

This is an individual based home assignment. Each student must email her/his report to Mr. Frank Yuan by 9:00 p.m., April 3. In addition to the written report, you also need to submit the R code file to Frank. In the report, you are required to interpret your analyses and results meaningfully. Visualize your findings with charts or tables to support your conclusions when necessary.