

Project: Analyzing a Market Test

Complete each section. When you are ready, save your file as a PDF document and submit it [here](#).

Step 1: Plan Your Analysis

To perform the correct analysis, you will need to prepare a data set. (500 word limit)

Answer the following questions to help you plan out your analysis:

1. What is the performance metric you'll use to evaluate the results of your test?
The performance metric used to evaluate the results of the test will be increase in profit (at least 18%). In the data profit is represented in the *gross_margin* variable
2. What is the test period?
The test ran for a period of 12 weeks (2016-April-29 to 2016-July-21) where five stores in each of the test markets offered the updated menu along with television advertising.
3. At what level (day, week, month, etc.) should the data be aggregated?
The data should be aggregated at a week level, since the test ran on a weekly level (12 weeks).

Step 2: Clean Up Your Data

In this step, you should prepare the data for steps 3 and 4. You should aggregate the transaction data to the appropriate level and filter on the appropriate data ranges. You can assume that there is no missing, incomplete, duplicate, or dirty data. You're ready to move on to the next step when you have weekly transaction data for all stores.

Step 3: Match Treatment and Control Units

In this step, you should create the trend and seasonality variables, and use them along with you other control variable(s) to match two control units to each treatment unit. Note: Calculate the number of transactions per store per week to calculate trend and seasonality.

Apart from trend and seasonality...

1. What control variables should be considered? Note: Only consider variables in the RoundRoastersStore file.

Control variables that need to be considered in the RoundRoastersStore given in Tips of Project says:

You should use 3 numeric measures to match treatment and control stores.

- Trend
- Seasonality
- AvgMonthSales (This should be determined by looking at the correlation between the appropriate numeric variables in the round roasters stores file AvgMonthSales and Sq_ft with the performance metric gross margin.) - This variable is in the round-roaster-stores.csv file

2. What is the correlation between your each potential control variable and your performance metric?

The correlation can be seen in the following matrix:

Pearson Correlation Analysis		
Full Correlation Matrix		
	AvgMonthSales	Sum_Gross.Margin
AvgMonthSales	1.00000	0.79036
Sum_Gross.Margin	0.79036	1.00000
Matrix of Corresponding p-values		
	AvgMonthSales	Sum_Gross.Margin
AvgMonthSales		0
Sum_Gross.Margin	0	

- What control variables will you use to match treatment and control stores?
 - Trend
 - Seasonality
 - AvgMonthSales
- Please fill out the table below with your treatment and control stores pairs:

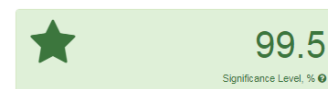
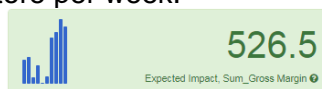
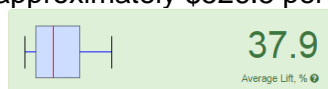
Treatment Store	Control Store 1	Control Store 2
1664	7162	8112
1675	1580	1807
1696	1863	1964
1700	1630	2014
1712	7434	8162
2288	2568	9081
2293	12219	9524
2301	3102	9238
2322	2409	3235
2341	12536	2383

Step 4: Analysis and Writeup

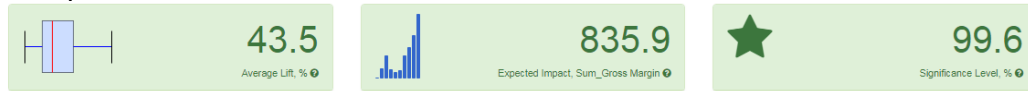
Conduct your A/B analysis and create a short report outlining your results and recommendations. (250 words limit)

Answer these questions. Be sure to include visualizations from your analysis:

- What is your recommendation - Should the company roll out the updated menu to all stores?
My recommendation would be for the change to take place to all stores.
- What is the lift from the new menu for West and Central regions (include statistical significance)?
The Lift from the new menu for West region is 37.9% with significance level of 99.5%.
The report shows that the test showed 37.9% improvement at a significance of 99.5%, or approximately \$526.5 per store per week.

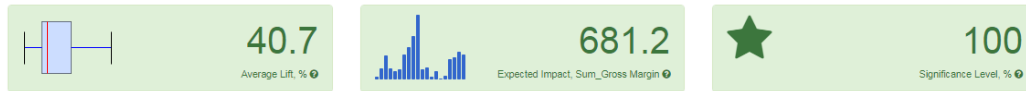


And for Central region 43.5% with significance level of 99.6%. It shows that the test showed 43.5% improvement at a significance of 99.6%, or approximately \$835.9 per store per week.



3. What is the lift from the new menu overall?

The Lift from the new menu overall is 40.7% with significance level of 100%. It shows that the test showed 40.7% improvement at a significance of 100%, or approximately \$681.2 per store per week.



Before you Submit

Please check your answers against the requirements of the project dictated by the [rubric](#) here. Reviewers will use this rubric to grade your project.