

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?
2. What is the test period?
3. At what level (day, week, month, etc.) should the data be aggregated?

I will use the gross margin per week per store to evaluate the results of my test. But I will use weekly traffic per store to test the trend.

The test period is from 2016-04-29 to 2016-07-22, which I will use for the analysis stage. But to find control match, I will use 76 weeks back from the end of test, from 2015-02-06 to 2016-07-22.

The data will be aggregated at week level.

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 your 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.

The Square Feet and Average Month Sales could be considered as control variables.

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

Since the performance metric is Weekly Gross Margin. The correlation between Average Month Sales and Weekly Gross Margin is 0.99. And the correlation between Square Feet and Weekly Gross Margin is -0.02. We can see a strong positive correlation between Average Month Sales and the performance, the Weekly Gross Margin.

See the table below:

Full Correlation Matrix

	Sq_Ft	AvgMonthSales	Sum_Sum_Gross.Margin
Sq_Ft	1.000000	-0.046967	-0.024224
AvgMonthSales	-0.046967	1.000000	0.990978
Sum_Sum_Gross.Margin	-0.024224	0.990978	1.000000

3. What control variables will you use to match treatment and control stores?

I will use trend, seasonality, and Average Month Sales as control variables to match treatment and control stores.

4. 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	1964	1863
1700	2014	1630
1712	8162	7434
2288	9081	2568
2293	12219	9524
2301	3102	9238
2322	2409	3235
2341	12536	2383

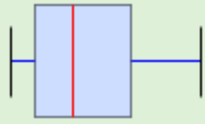
Step 4: Analysis and Writeup

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:

1. What is your recommendation - Should the company roll out the updated menu to all stores?
2. What is the lift from the new menu for West and Central regions (include statistical significance)?
3. What is the lift from the new menu overall?

I would strongly suggest the company roll out the updated menu to all stores, since the lift from the new menu for West is 37.9% with a significant level of 99.5, and the lift from the new menu for Central is 43.5%, with a significant level of 99.5.



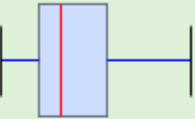
37.9

Average Lift, % ?



99.5

Significance Level, % ?



43.5

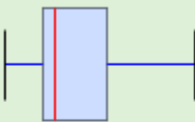
Average Lift, % ?



99.5

Significance Level, % ?

The lift from the new menu overall is 40.7, with a significant level of 100.



40.7

Average Lift, % ?



100

Significance Level, % ?

Since 18% increase would be enough to justify the increased marketing budget, the above number is very good and strong.

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.