

Project: Analyzing a Market Test

Step 1: Plan Your Analysis

1. What is the performance metric you'll use to evaluate the results of your test?
gross_margin.
2. What is the test period?
The test ran for a period of 12 weeks (2016-April-29 to 2016-July-21)
3. At what level (day, week, month, etc.) should the data be aggregated?
The data should be aggregated at the level of week as the test periodicity is in terms of weeks.

Step 2: Clean Up Your Data

Data preparation steps taken:

1. First step to join Round Rosters transaction data to Round Rosters stores data so that the region component is matched to the Store ID
2. Now Records are filtered to for the following dates [Invoice Date] >= "2015-01-21" and [Invoice Date] <= "2016-07-21" which encompasses test period of 12 weeks (2016-April-29 to 2016-July-21) and the comparative period (2015-April-29 to 2015-July-21).
3. Now the daily data is aggregated weekly showing total number of invoices per week per store.

(sample)

Record #	StoreID	Week	Week_Start	Week_End	Count_Invoice
1	1508	1	2015-01-21	2015-01-27	361
2	1508	2	2015-01-28	2015-02-03	346
3	1508	3	2015-02-04	2015-02-10	403
4	1508	4	2015-02-11	2015-02-17	372

Step 3: Match Treatment and Control Units

Trend and seasonality variables are created by using the total number of invoices per week per store data.

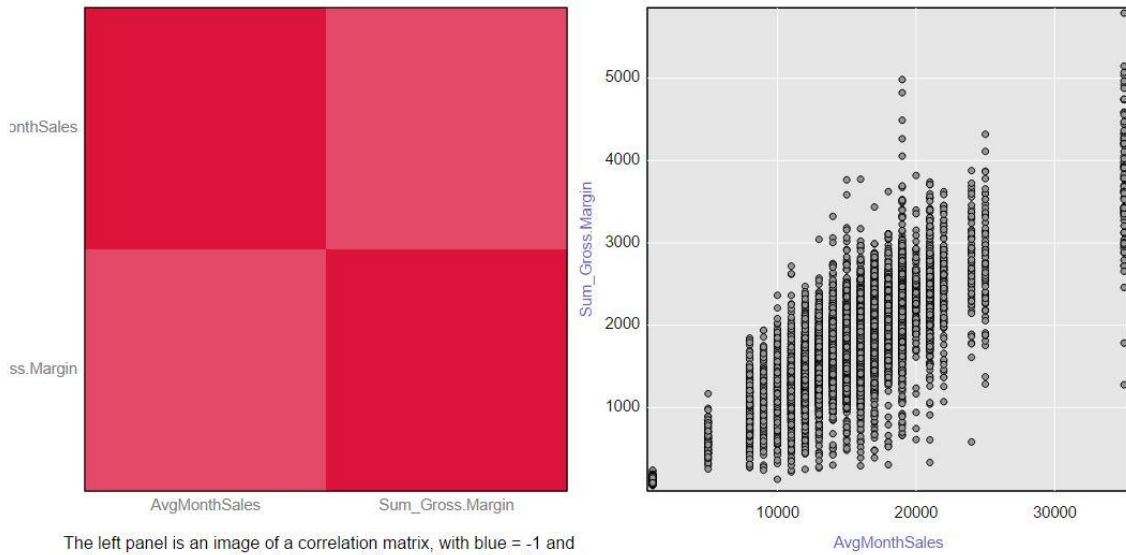
Apart from trend and seasonality...

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

Avg Monthly Sales and Sq_Ft. are both numeric variables and it seems to be potential control candidates.
2. What is the correlation between your each potential control variable and your performance metric?

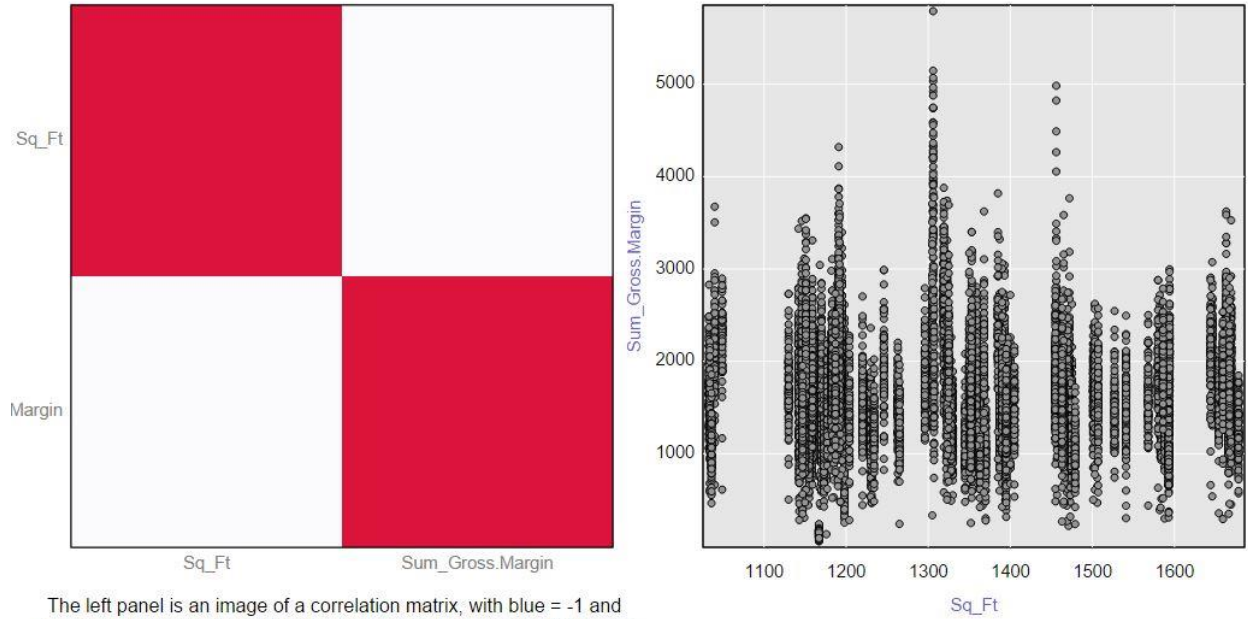
We now perform association analysis between each potential control variable and gross margin.

Avg Monthly sales vs Gross Margin



The left panel is an image of a correlation matrix, with blue = -1 and red = +1. Hover over pixels in the correlation matrix on the left to see the values; click to see the corresponding scatterplot on the right. The variables have been clustered based on degree of correlation, so that highly correlated variables appear adjacent to each other.

Avg Monthly sales vs Sq Ft



The left panel is an image of a correlation matrix, with blue = -1 and red = +1. Hover over pixels in the correlation matrix on the left to see

Comparing the correlation matrices, we can say that Average monthly sale is highly correlated to the performance metric, gross margin. Now, if two stores have similar avg month sales, they are also expected to have related gross margins, and thus, avg month sales should be used as a criterion for matching the stores.

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

Record #	StoreID	Controls	Treatments	Distance	Region	Treatment
1	1664	1964	1664	0.034898	Central	Treatment
2	1664	6992	1664	0.311856	Central	Treatment
3	1675	2014	1675	0.338873	Central	Treatment
4	1675	8312	1675	0.362477	Central	Treatment
5	1696	7334	1696	0.564902	Central	Treatment
6	1696	8112	1696	0.707449	Central	Treatment
7	1700	7037	1700	0.739116	Central	Treatment
8	1700	7384	1700	0.80996	Central	Treatment
9	1712	8212	1712	0.153046	Central	Treatment
10	1712	1857	1712	0.20417	Central	Treatment
11	2288	10218	2288	0.280109	West	Treatment
12	2288	10568	2288	0.32542	West	Treatment
13	2293	3302	2293	0.390416	West	Treatment
14	2293	11768	2293	0.463527	West	Treatment
15	2301	3185	2301	0.12654	West	Treatment
16	2301	10468	2301	0.223266	West	Treatment
17	2322	9017	2322	0.082676	West	Treatment
18	2322	8817	2322	0.235906	West	Treatment
19	2341	2409	2341	0.064332	West	Treatment
20	2341	2572	2341	0.145228	West	Treatment

Step 4: Analysis and Writeup

- What is your recommendation - Should the company roll out the updated menu to all stores?



Yes, as the sales increased after the introduction of the new menu at a high level of significance.



2. What is the lift from the new menu for West and Central regions (include statistical significance)?

Lift for Central region

Time: 2017-03-17 23:10:34



Lift for West Region



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

