Project: Analyzing a Market Test

Plan Your Analysis

What is the performance metric you'll use to evaluate the results of your test?

After reviewing the data, it seems that the best performance metric would be the sum of gross margin. We will use this to evaluate if the new menu should be introduced or not.

What is the test period?

The test period is the period from 29th April 2016 to 21st July 2016.

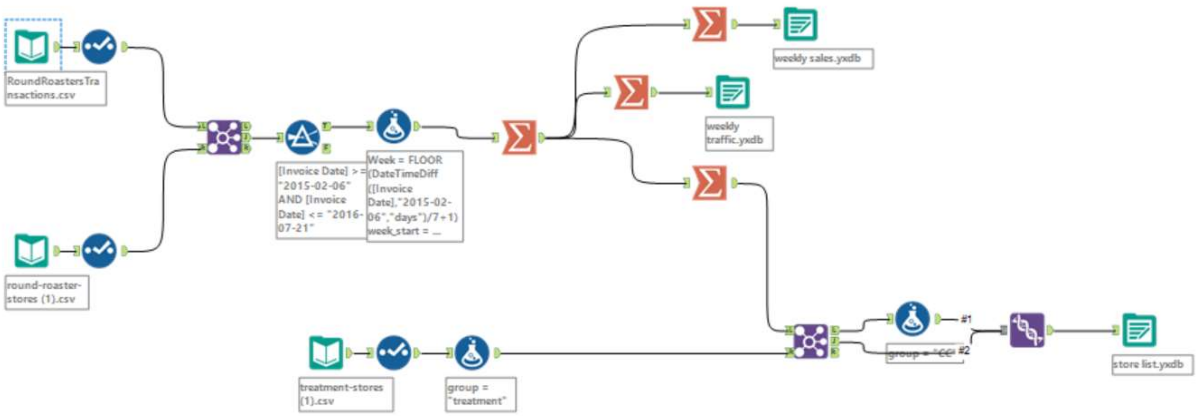
At what level (day, week, month, etc.) should the data be aggregated?

Derived from the build of the test we should aggregate the data on a weekly level.

Clean Up Your Data

The transaction and store list data are the first used, to combine the data. We need 76 weeks of data because the A/B test requires 52 weeks of data in addition to a minimum of 12 weeks of data needed to calculate seasonality and trend. In this case we use 12 weeks of data instead of 6 weeks because of the test period.

The fields week, week_start & week_end are added to calculate the weekly traffic and sales for each store. Treatment_Store dataset is then introduced to create a list of control and treatment stores.



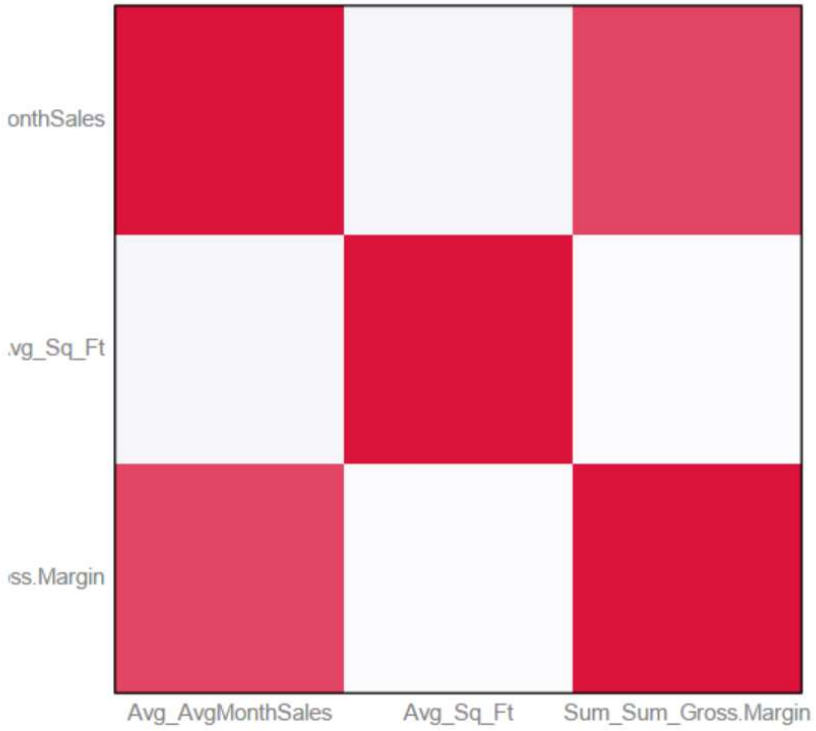
Match Treatment and Control Units

What control variables should be considered?

There are two variables to consider for control variables AvgMonthSales and sq_ft (square feet)

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

Using the association tool, we see that the correlation between our performance metric and the average monthly sales (AvgMonthSales) can be considered strong while the correlation between sqare foot (sq_ft) is weak.



FieldName	Sum_Sum_Gross Margin	Avg_AvgMonthSales	Avg_Sq_Ft
Sum_Sum_Gross Margin	1	0.790358	-0.019345
Avg_AvgMonthSales	0.790358	1	-0.046967
Avg_Sq_Ft	-0.019345	-0.046967	1

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

The control variable AvgMonthSales will be used together with trend and seasonality. The variable sq_ft will not be used as the correlation is weak to the performance metric.

Please fill out the table below with your treatment and control stores pairs:

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

Analysis and Writeup

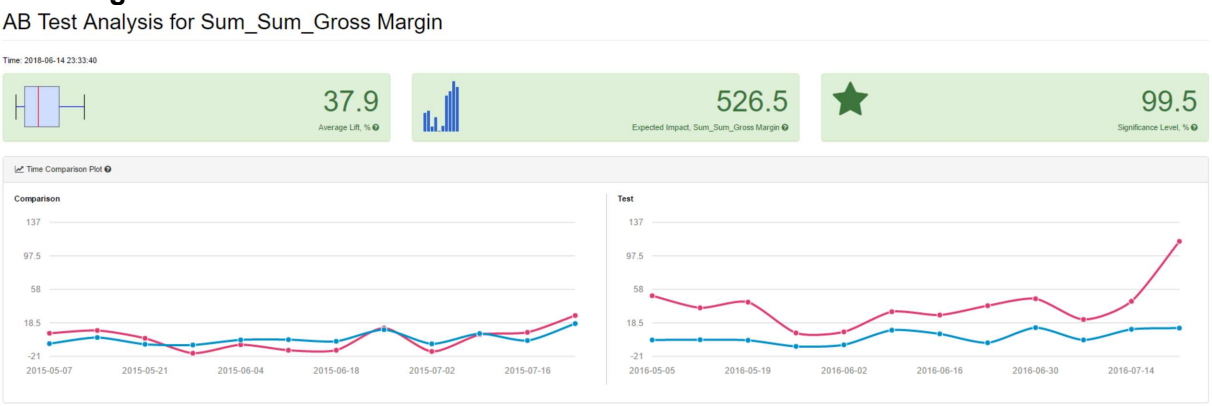
What is your recommendation - Should the company roll out the updated menu to all stores?

The company should roll out and introduce the new menu, as the sum of gross margin increased by more than 18%. This is shown in the incremental lift measurement. The expected impact on the gross margin per store per week is $681.2.

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

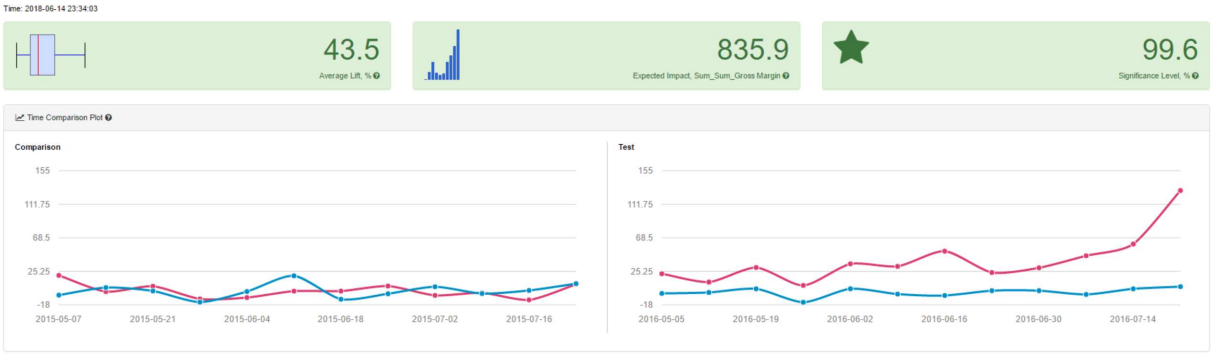
The lift for the West region is 37.9% and the lift for the Central region is 43.5%. Both have high statistical significance of 99.5% and 99.6%

West Region



Central Region

AB Test Analysis for Sum_Sum_Gross Margin



What is the lift from the new menu overall?

The overall lift for both regions is 40.7% with a statistical significance of 100%

Overall

AB Test Analysis for Sum_Sum_Gross Margin