

Project: Analyzing a Market Test

Step 1: Plan Your Analysis

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

The **Gross margin** is the performance metric used to evaluate the results of this test. The predicted impact to profitability should be enough to justify the increased marketing budget: at least 18% increase in profit growth compared to the comparative period while compared to the control stores; otherwise known as incremental lift. In the data, profit is represented in the gross_margin variable.

What is the test period?

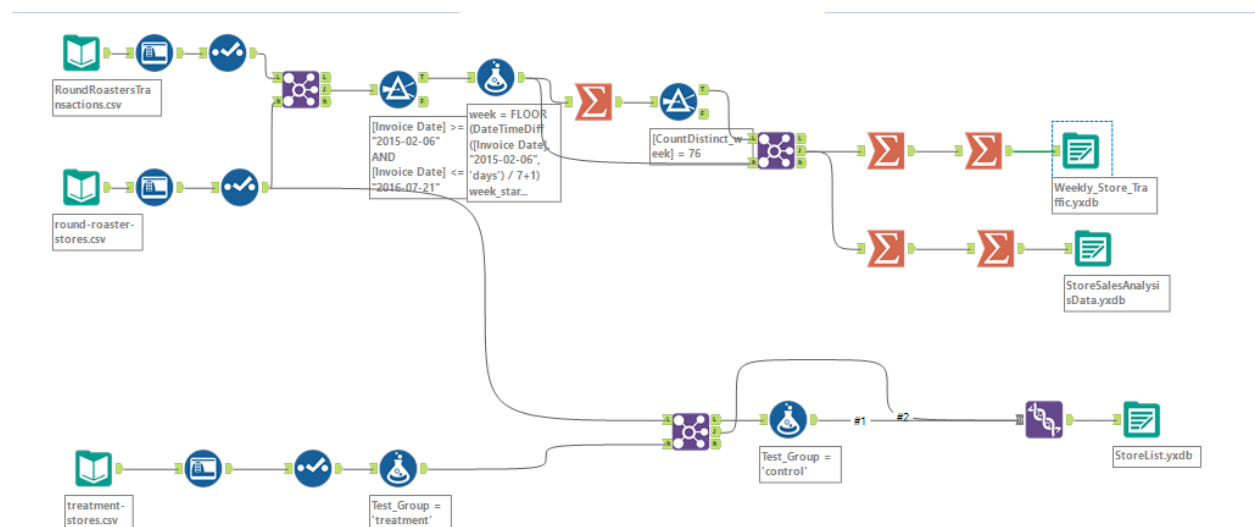
The test ran for a period of 12 weeks (2016-April-29 to 2016-July-21). Where five stores in each of the test markets offered the updated menu along with television advertisement.

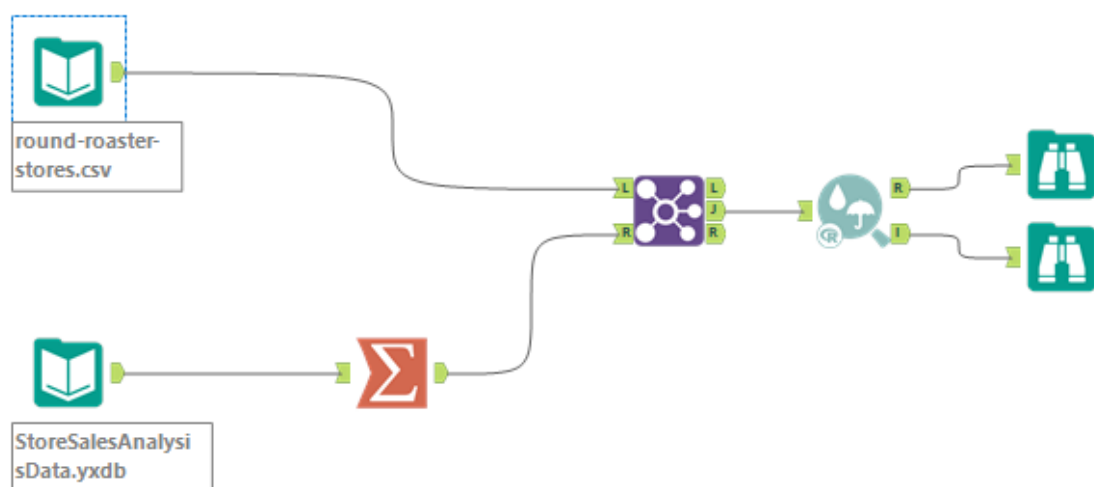
At what level (day, week, month, etc.) should the data be aggregated?

The data should be aggregated at the **week** level.

Step 2: Clean Up Your Data

Here's the data preparation workflow in Alteryx:





There is strong correlation between Gross Margin and AvgMonthSales = 0.99
AvgMonthSales is used to match treatment and control stores. Based on the Pearson Correlation Analysis report below, The **AvgMonthSales** is statistically significant because the p-value < 0.05.

Pearson Correlation Analysis

Full Correlation Matrix

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

Matrix of Corresponding p-values

	Sq_Ft	AvgMonthSales	Sum_Sum_Sum_Gross.Margin
Sq_Ft		0.59138	0.78196
AvgMonthSales	0.59138		0.00000
Sum_Sum_Sum_Gross.Margin	0.78196	0.00000	

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

AvgMonthSales alongside Trend and Seasonality will be used to match treatment and control stores

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

Treatment Store	Control Store 1	Control Store 2
1664	1964	8562
1675	1807	7584
1696	1863	7334

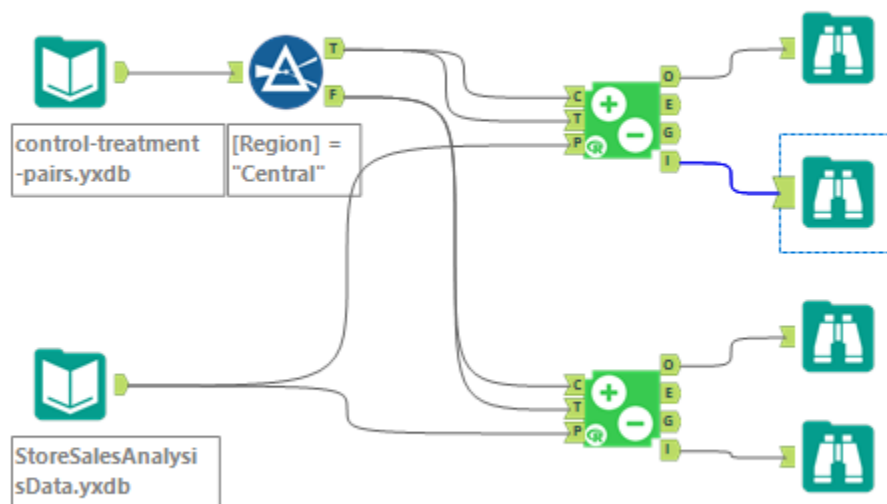
1700	7037	1508
1712	8162	7434
2288	2568	9081
2293	12219	9639
2301	11668	12019
2322	9238	9388
2341	2572	3102

Step 4: Analysis and Writeup

Recommendation

Based on the A/B analysis results, Round Roasters should roll out the updated menu to all stores. Looking at the result of average lift (details below) for each region and overall, they are all significantly higher than 18%. Therefore, the company should roll out the updated menu.

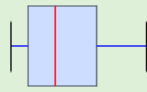
What is the lift from the new menu for West and Central regions (include statistical significance)?



West region: The Average Lift is 37.9% and the Significance Level is 99.5%. See the A/B Test analysis model and report below

AB Test Analysis for Sum_Sum_Gross Margin

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37.9

Average Lift, %



526.5

Expected Impact, Sum_Sum_Gross Margin

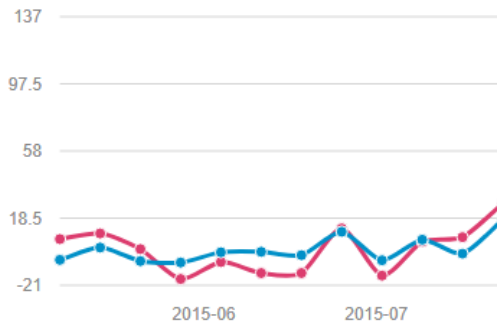


99.5

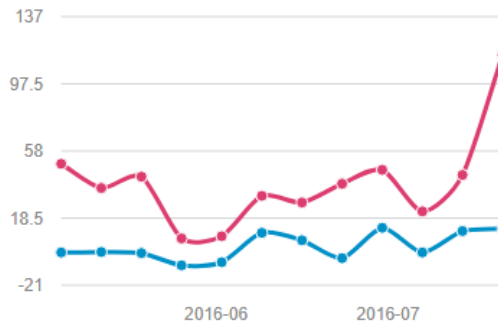
Significance Level, %

Time Comparison Plot

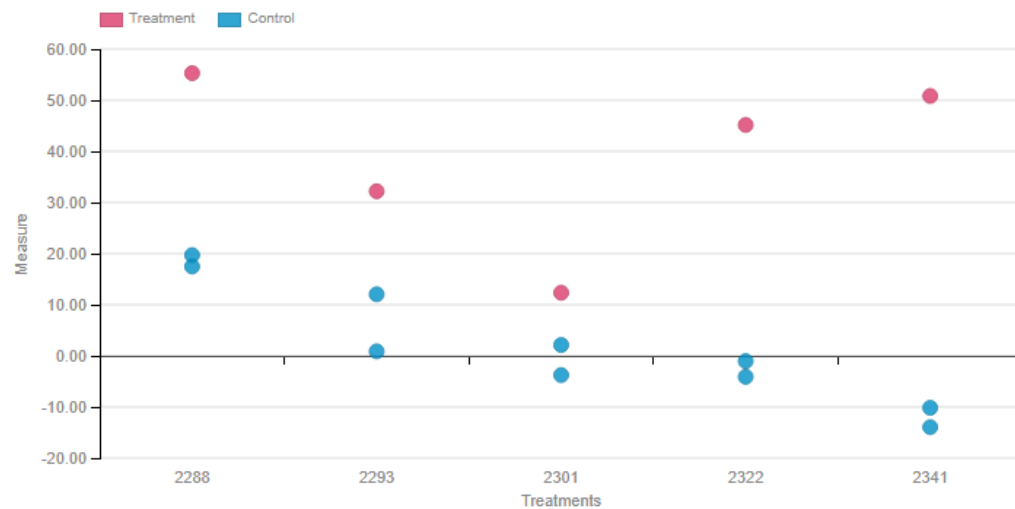
Comparison



Test



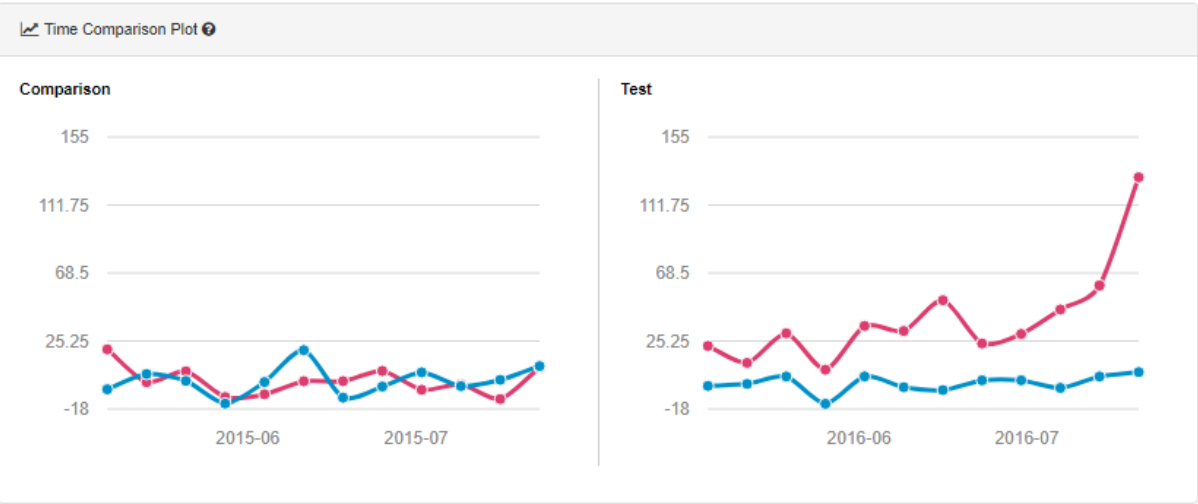
Dot Plot of % Change

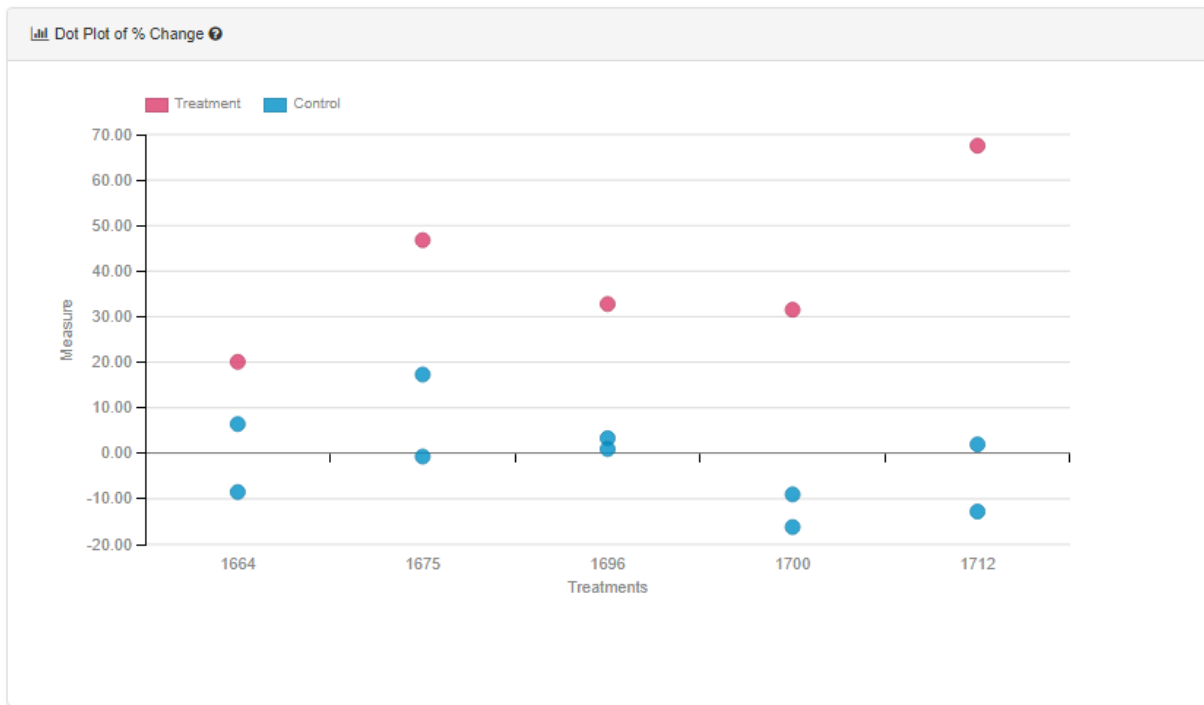


Central region: The Average Lift is 43.5% and the Significance Level is 99.5%. See the A/B Test analysis report below

AB Test Analysis for Sum_Sum_Gross Margin

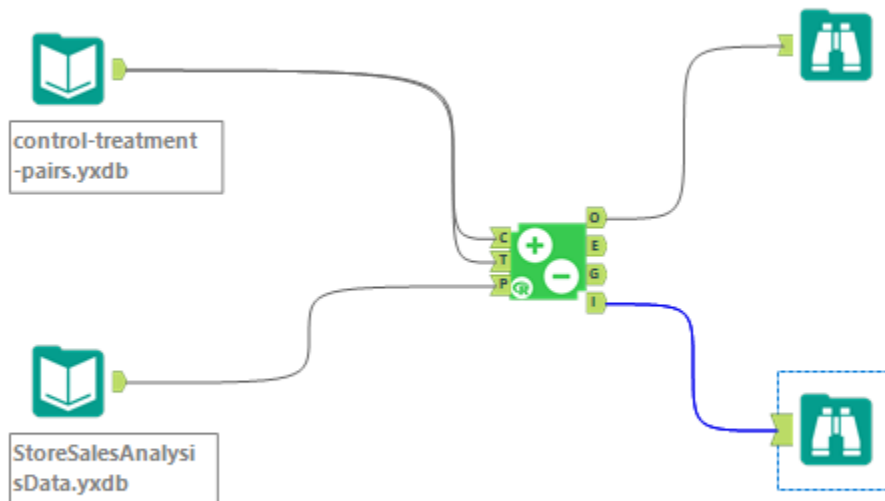
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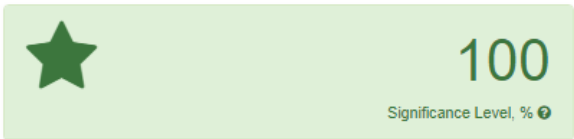
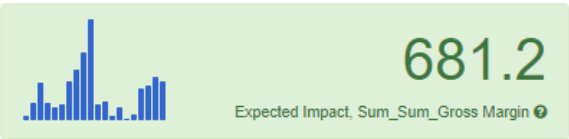
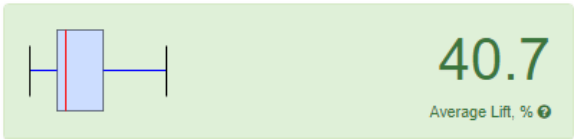
What is the lift from the new menu overall?

The lift from the new menu overall is 40.7%. See the A/B Test analysis workflow and report below:



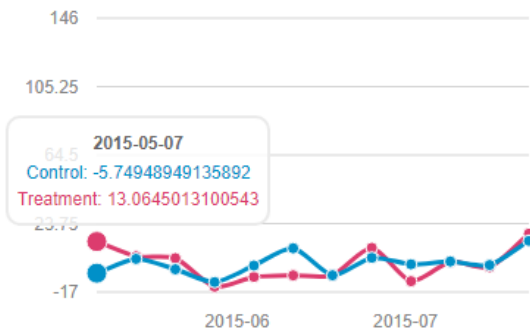
AB Test Analysis for Sum_Sum_Gross Margin

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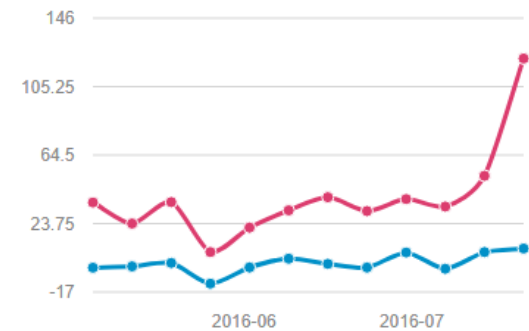


Time Comparison Plot

Comparison



Test



Dot Plot of % Change

