Project: Analyzing a Market Test

Step 1: Planning the Analysis

For the Round Roasters Store, the Performance Metric as a Business Analyst is to determine if including advertisement of new offerings will increase the profit (Gross Margin)

As given in the Project Details, the Test period for this project is 12 weeks from April 29 2016 to July 21 2016. This was the period where the five stores in each of the test markets offered the updated menu along with television advertisement.

The data should be aggregated on a weekly basis since the test period ran for a period of 12 weeks.

Step 2: Clean Up Your Data

A total of 76 weeks was considered to monitor Trends and Seasonality. While 12 weeks is for Treatment, 12 Weeks is for Control and 52 weeks for monitoring Trends. It was assumed that the Treatment Stores data is devoid of Duplicates, Incomplete and Dirty Data. The data was aggregated on a Weekly Basis (2015-02-06 to 2016-07-21) with a total of 76 weeks.

For the Round Roaster Store Dataset, the columns: Store ID, Region, Sq_Ft and Avg Month Sales were kept, while for the Round Roaster Transactions Dataset, the columns: Store ID,

Invoice Date, Sales, Gross Margin.

The Round Roaster Transaction and Store Datasets were merged to form a new dataset which was filtered to include only dataset within the Invoice Date of time range 72 weeks. A new Column, Weeks is added to the dataset to denote the week for the invoice date, The least week is 1 and the highest is 76.

The data is grouped on a Weekly basis, we'll see that for Store ID 10018, there are 308 unique transactions with a Gross Margin sum of 2212.7105

StoreID	week	weekstart	week_end	Count
10018	1	2/6/2015	2/12/2015	308
10018	2	2/13/2015	2/19/2015	288
10018	3	2/20/2015	2/26/2015	204
10018	4	2/27/2015	3/5/2015	320
10018	5	3/6/2015	3/12/2015	284
10018	6	3/13/2015	3/19/2015	288
10018	7	3/20/2015	3/26/2015	194
10018	8	3/27/2015	4/2/2015	286
10018	9	4/3/2015	4/9/2015	274
10018	10	4/10/2015	4/16/2015	215
10018	11	4/17/2015	4/23/2015	277
10018	12	4/24/2015	4/30/2015	251
10018	13	5/1/2015	5/7/2015	201
10018	14	5/8/2015	5/14/2015	207
10018	15	5/15/2015	5/21/2015	334
10018	16	5/22/2015	5/28/2015	243
10018	17	5/29/2015	6/4/2015	321
10018	18	6/5/2015	6/11/2015	406
10018	19	6/12/2015	6/18/2015	294
10018	20	6/19/2015	6/25/2015	389
10018	21	6/26/2015	7/2/2015	314
10018	22	7/3/2015	7/9/2015	234
10018	23	7/10/2015	7/16/2015	228

StoreID	week	weekstart	week_end	Sum_Gross Margin
10018	1	2/6/2015	2/12/2015	2212.7105
10018	2	2/13/2015	2/19/2015	2164.007
10018	3	2/20/2015	2/26/2015	1560.929
10018	4	2/27/2015	3/5/2015	2342.984
10018	5	3/6/2015	3/12/2015	2199.4065
10018	6	3/13/2015	3/19/2015	2103.143
10018	7	3/20/2015	3/26/2015	1412.927
10018	8	3/27/2015	4/2/2015	2124.3715
10018	9	4/3/2015	4/9/2015	2216.152
10018	10	4/10/2015	4/16/2015	1686.246
10018	11	4/17/2015	4/23/2015	1938.1365
10018	12	4/24/2015	4/30/2015	1874.485
10018	13	5/1/2015	5/7/2015	1571.1225
10018	14	5/8/2015	5/14/2015	1586.3945
10018	15	5/15/2015	5/21/2015	2473.113
10018	16	5/22/2015	5/28/2015	1815.0065
10018	17	5/29/2015	6/4/2015	2330.4885
10018	18	6/5/2015	6/11/2015	2897.6665
10018	19	6/12/2015	6/18/2015	2155.198
10018	20	6/19/2015	6/25/2015	2639.836
10018	21	6/26/2015	7/2/2015	2188.6865
10018	22	7/3/2015	7/9/2015	1732.0025
10018	23	7/10/2015	7/16/2015	1785.636

Step 3: Match Treatment and Control Units

The Control Variables considered are Sq_Ft and Sales against the Performance Metric (Gross_Margin)

The Correlation between Gross Margin and Sq_Ft is quite low (-0.007)

The Correlation between Gross Margin and Sales is high (0.957)

Treatment Store	Control Store 1	Control Store 2
1664	1857	7484
1675	2114	1508
1696	7434	7584
1700	1662	8262
1712	7534	8162
2288	9188	2752
2293	11468	10618
2301	2409	3235
2322	10468	9238
2341	11368	2572

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:

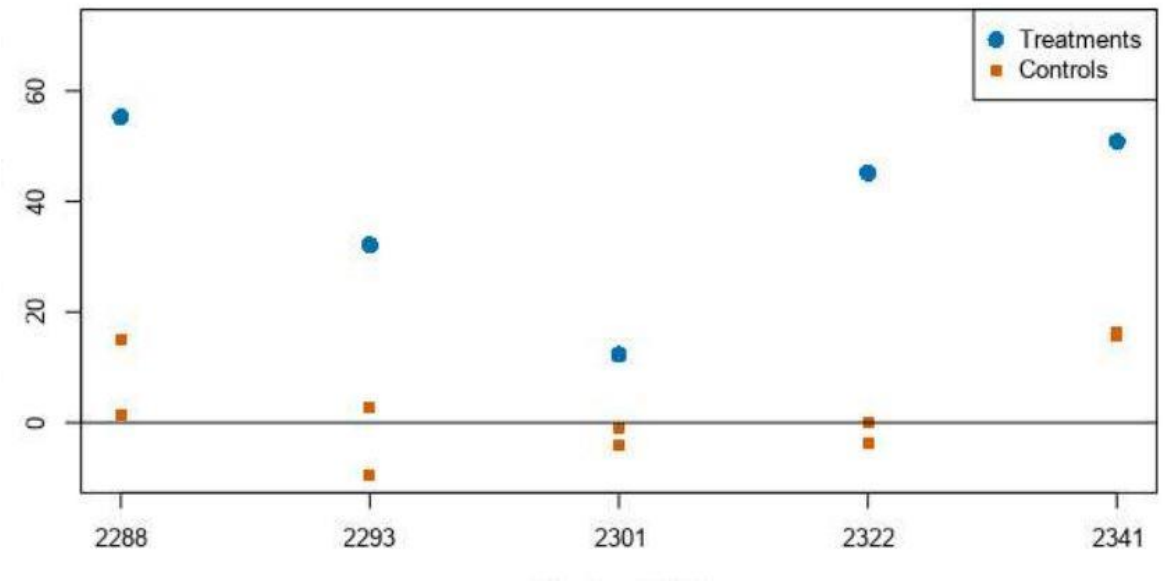
1. What is your recommendation - Should the company roll out the updated menu to all stores?

The Company should roll out the updated menu to all stores since the increase in profit is more than 18%.

For the West: There is a 34.9 % Lift at 99.3 Significance Level

Lift Analysis for Sum_Gross Margin

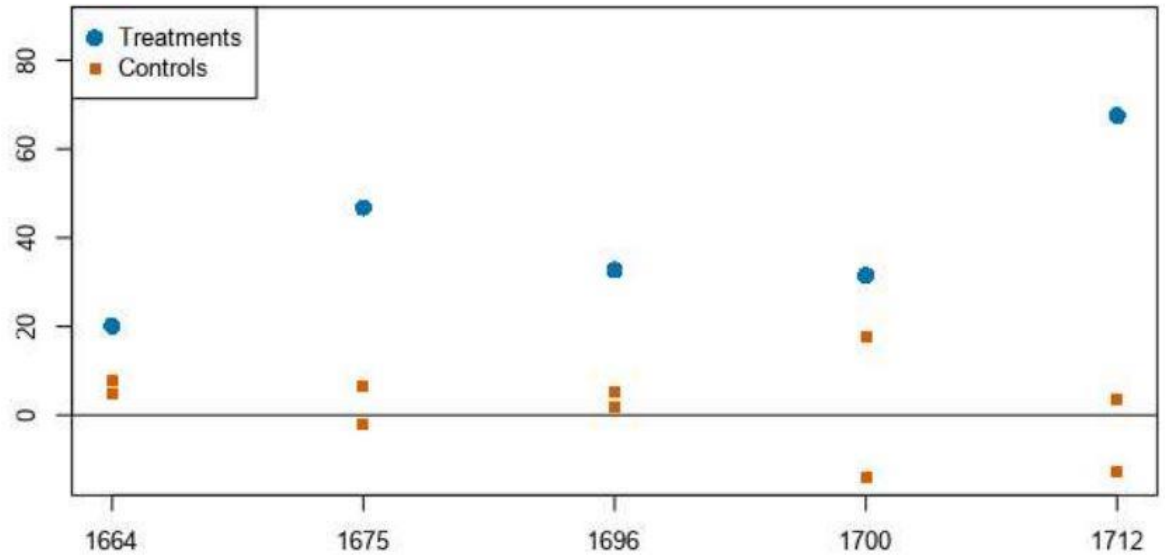
Lift	Expected Impact	Significance Level
34.9%	489	99.3%



For the Central: There is a 38.9% Lift at 99.3% Significance Level

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
38.9%	751	99.3%



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

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
36.9%	620	100.0%