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 is the performance metric will be used to evaluate for the results.

2. What is the test period?

   Test period will be 12 weeks from 2016-04-29 through to 2016-07-21.

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

   Data should be aggregated weekly.

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

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

   AvgMonthSales and *Sq_Ft* should be considered.

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

   Only AvgMonthSales has high correlation with gross margin.

Pearson Correlation Analysis

Full Correlation Matrix

	Sq_Ft	AvgMonthSales	Sum_Gross.Margin
Sq_Ft	1.000000	-0.040063	-0.023062
AvgMonthSales	-0.040063	1.000000	0.805388
Sum_Gross.Margin	-0.023062	0.805388	1.000000

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

   I would use *AvgMonthSales, trend, seasonality* since *Sq_ft* has low correlation with gross margin.

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

1. What is your recommendation - Should the company roll out the updated menu to all stores?
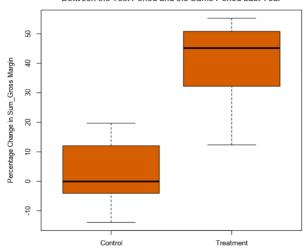
   Yes, I would recommend Round Roasters implement the new menu to all stores due to the lift is 40.7% with 100% of significance level.

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

   For the west regions, the lift is 37.9% with 99.5% of significance level.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
37.9%	527	99.5%

Box and Whisker Plot of the Percentage Change in Sum_Gross Margin
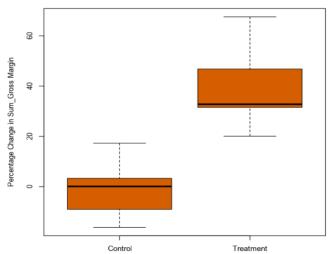Between the Test Period and the Same Period Last Year

For the central regions, the lift is 43.5% with 99.6% of significance level.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
43.5%	836	99.6%

Box and Whisker Plot of the Percentage Change in Sum_Gross Margin
Between the Test Period and the Same Period Last Year

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

The overall lift is 40.7% with 100% of significance level.

Lift Analysis for Sum_Gross Margin

Lift	Expected Impact	Significance Level
40.7%	681	100.0%

Box and Whisker Plot of the Percentage Change in Sum_Gross Margin
Between the Test Period and the Same Period Last Year