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?**
   To evaluate whether to introduce gourmet sandwiches and limited wine offerings to spur sales growth in Round Roasters the sum of gross margin will be used as performance metrics.

2. **What is the test period?**
   12 weeks is used as test period here (29-Apr-16 to 21-Jul-16).
3. **At what level (day, week, month, etc.) should the data be aggregated?**
   At weekly level, the data should be aggregated.

Step 2: Clean Up Your Data

1. At first we combined datasets **RoundRoasterTransaction** and **Round-Roaster-Store**
2. We use 76 weeks data (6-Feb-15 to 21-Jul-16) as A/B test requires 52 weeks of data.
3. In addition, to a minimum of 12 weeks needed to calculate seasonality and for the period of testing each.
4. In this case 12 weeks is used instead of 6 weeks as the test period lasted for 12 weeks.
5. Then **Treatment_Store** dataset is introduced to create a list of control and treatment stores.

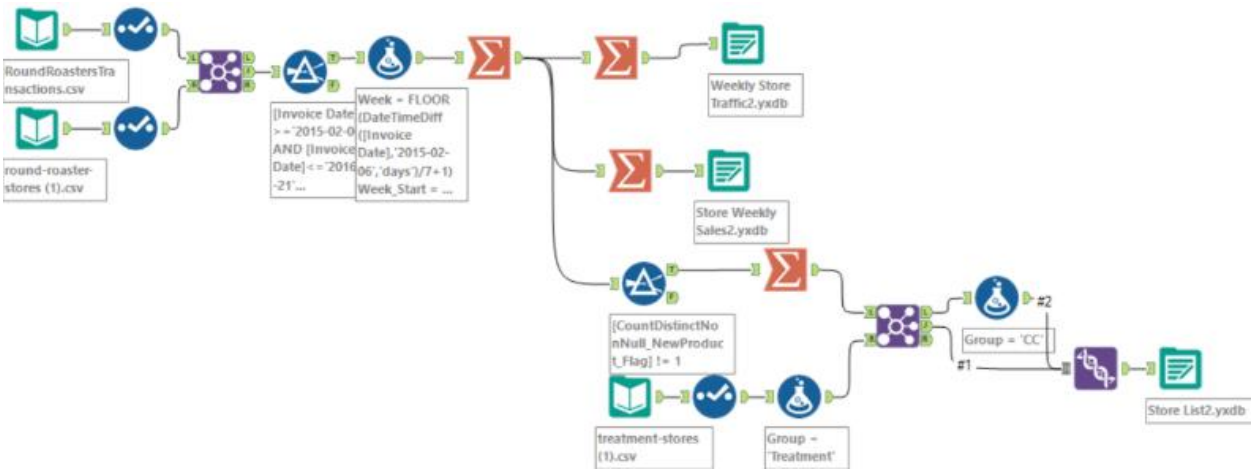

Fig: Clean Up data Workflow

Step 3: Match Treatment and Control Units

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

2. **What is the correlation between your each potential control variable and your performance metric?**
   From the Pearson Correlation Analysis, AvgMonthSales has high correlation of 0.99 with the performance metric, i.e. Sum of Gross Margin. On the other hand, Square Feet has a poor correlation of -0.05.
3. **What control variables will you use to match treatment and control stores?**
   AvgMonthSales and Trend and Seasonality will be used together when matching treatment and control stores.

4. 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
2241	2572	3102

Step 4: Analysis and Writeup

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 as during the test period sum of profit margin increased by more than 18%, from $17,978.67 per store to $26,687.45 per store.

2. **What is the lift from the new menu for West and Central regions (include statistical significance)?**
   The lift for West region is 36.6% and a statistical significance of 99.5% while the lift for Central region is 43.2% and a statistical significance of 100%.

3. **What is the lift from the new menu overall?**
   43.2% is the lift for the new menu overall with a statistical significance of 99.6%.

Overall

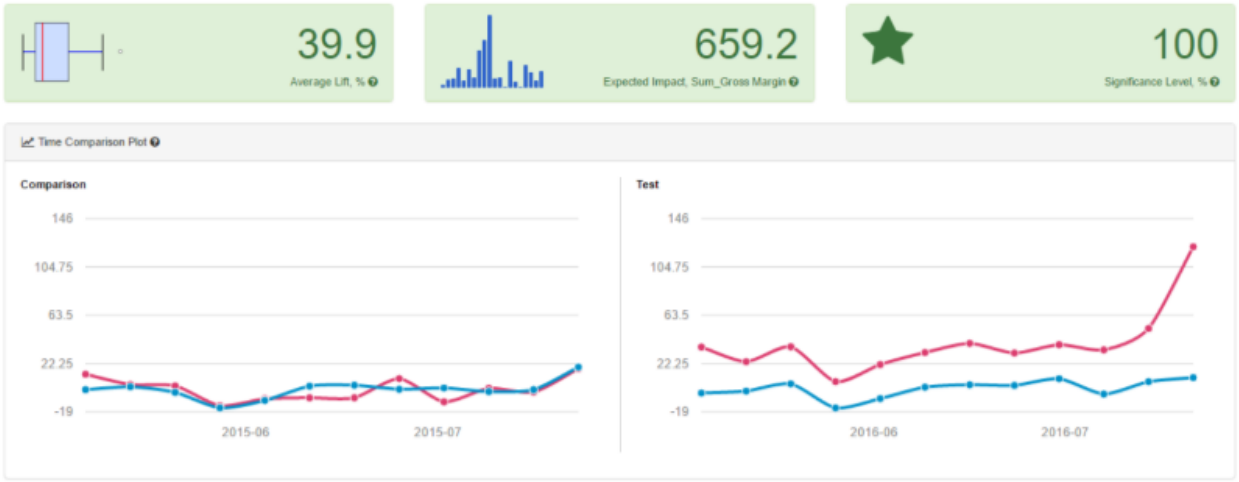

Fig: A/B analysis for overall

Central Region

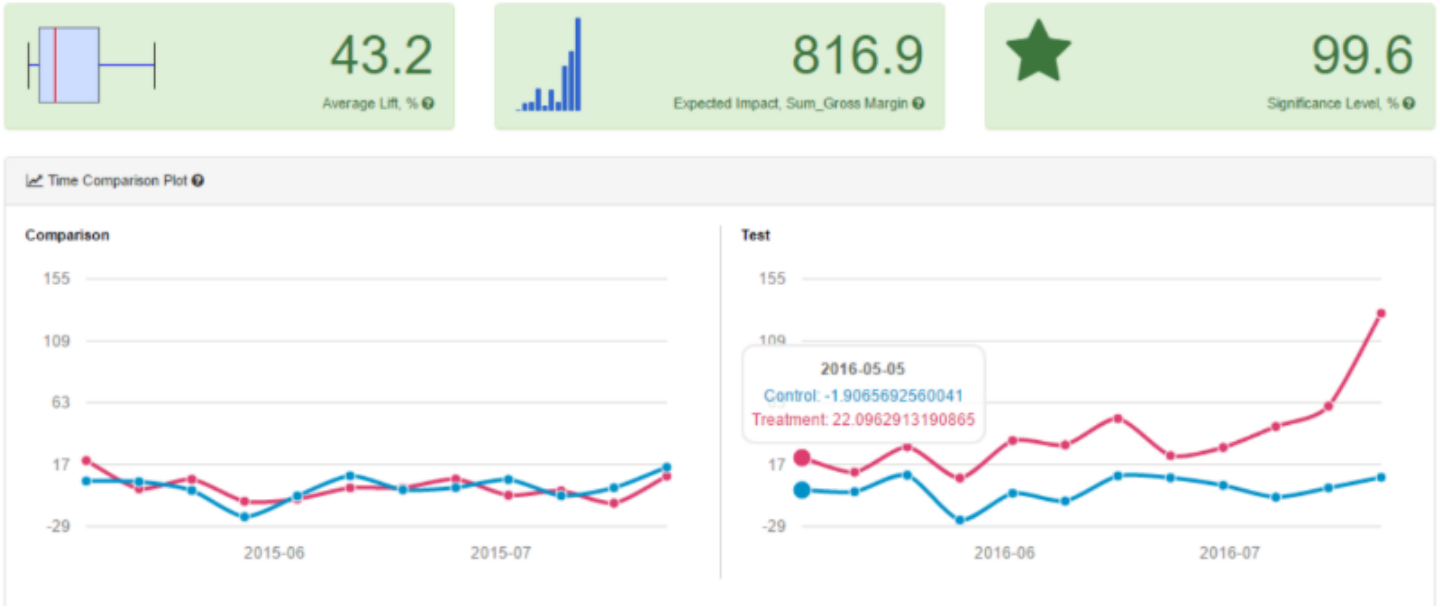

Fig: A/B analysis for Central Region

West Region

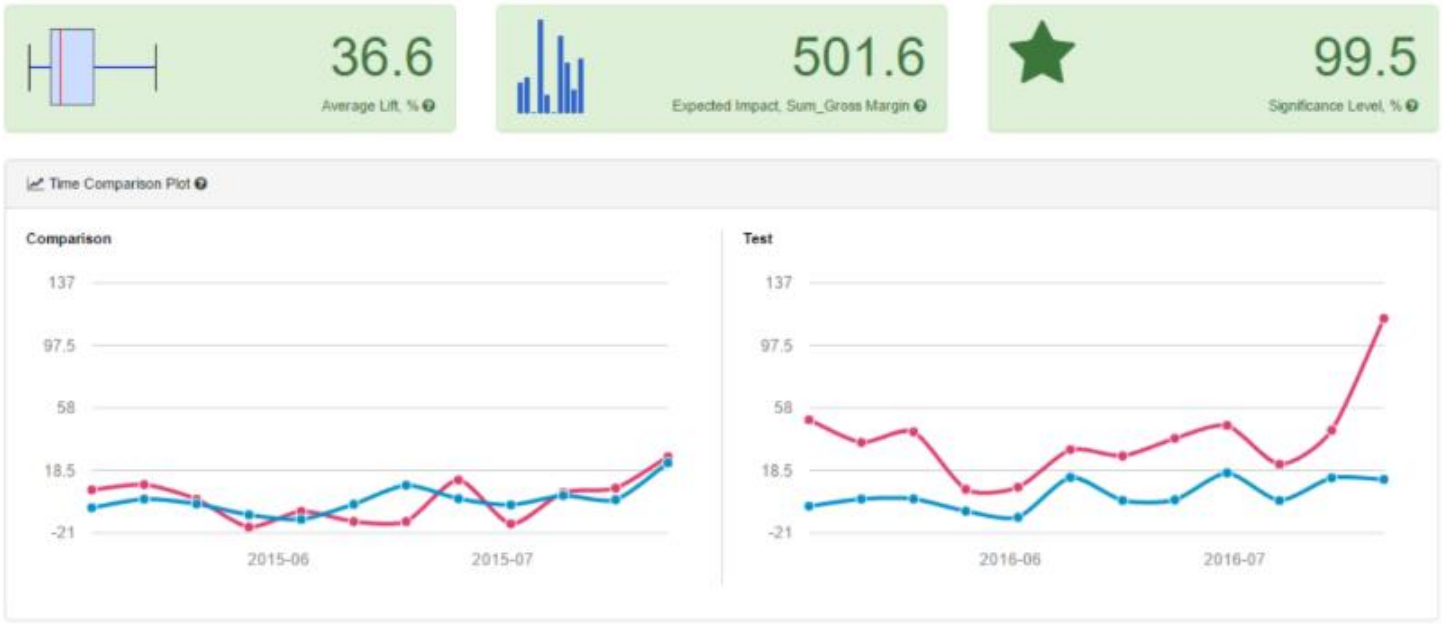

Fig: A/B analysis for West Region

Alteryx Workflow

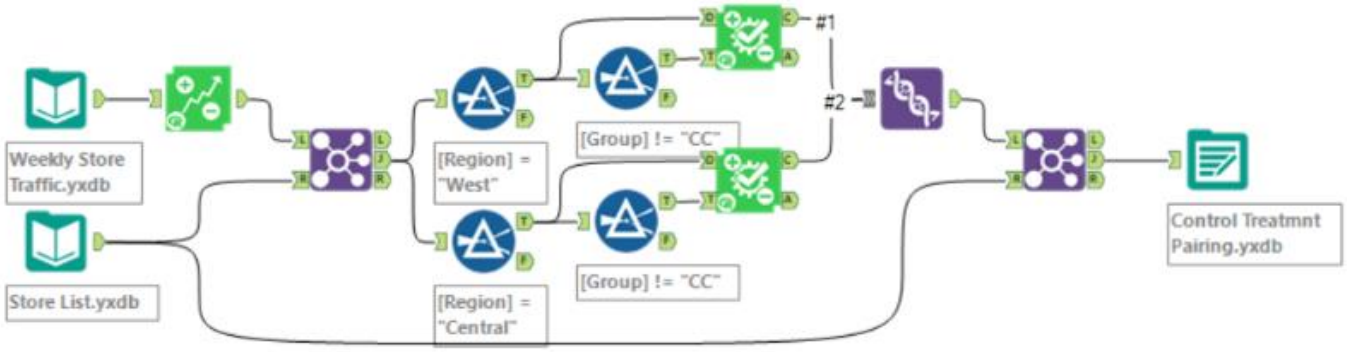

Fig: Determine control and treatment store pairing

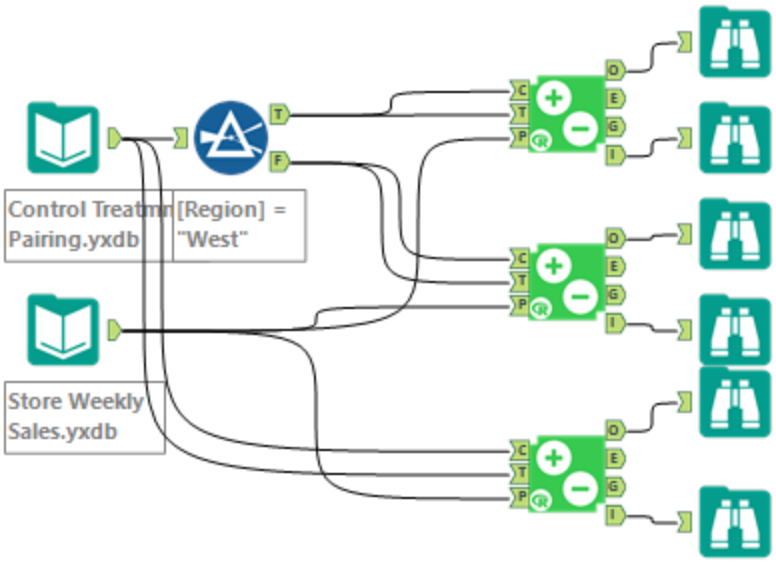

Fig: A/B analysis