

Project: Analyzing a Market Test

Step 1: Plan Your Analysis

Answer the following questions to help you plan out your analysis:

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

Gross margin/incremental lift.

2. What is the test period?

April 29th, 2016 to July 21st, 2016.

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

Week.

Step 2: Clean Up Your Data

Weekly gross margin and distinct invoice (weekly traffic) are aggregated. Stores with 76 weeks data are used in later trend and seasonality calculation.

Step 3: Match Treatment and Control Units

In this step, you should create the trend and seasonality variables, and use them along with you other control variable(s) to match two control units to each treatment unit. Note: Calculate the number of transactions per store per week to calculate trend and seasonality.

Apart from trend and seasonality...

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

AvgMonthSales and Sq_ft are considered.

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

| FieldName | Sq_Ft | AvgMonthSales | Weekly Gross Margin |
|---------------------|-----------|---------------|---------------------|
| Sq_Ft | 1 | -0.046967 | -0.019345 |
| AvgMonthSales | -0.046967 | 1 | 0.790358 |
| Weekly Gross Margin | -0.019345 | 0.790358 | 1 |

AvgMonthSales has high (greater than 0.7) correlation with Weekly Gross Margin.

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

Trend, seasonality and AvgMonthSales are used to match treatment and control stores located in West and Central regions, respectively.

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

| Record | Controls | Treatments | Distance | Region |
|--------|----------|------------|----------|---------|
| 1 | 9081 | 2288 | 0.277932 | West |
| 2 | 2568 | 2288 | 0.714134 | West |
| 3 | 12219 | 2293 | 0.348583 | West |
| 4 | 9524 | 2293 | 0.656038 | West |
| 5 | 3102 | 2301 | 0.381248 | West |
| 6 | 9238 | 2301 | 0.434646 | West |
| 7 | 2409 | 2322 | 0.171431 | West |
| 8 | 3235 | 2322 | 0.45125 | West |
| 9 | 12536 | 2341 | 0.39796 | West |
| 10 | 2383 | 2341 | 0.423792 | West |
| 11 | 7162 | 1664 | 0.478595 | Central |
| 12 | 8112 | 1664 | 1.034443 | Central |
| 13 | 1580 | 1675 | 0.45634 | Central |
| 14 | 1807 | 1675 | 0.560454 | Central |
| 15 | 1964 | 1696 | 0.312367 | Central |
| 16 | 1863 | 1696 | 0.489137 | Central |
| 17 | 2014 | 1700 | 0.810402 | Central |
| 18 | 1630 | 1700 | 0.91618 | Central |
| 19 | 8162 | 1712 | 0.671441 | Central |
| 20 | 7434 | 1712 | 0.793269 | Central |

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

Step 4: Analysis and Writeup

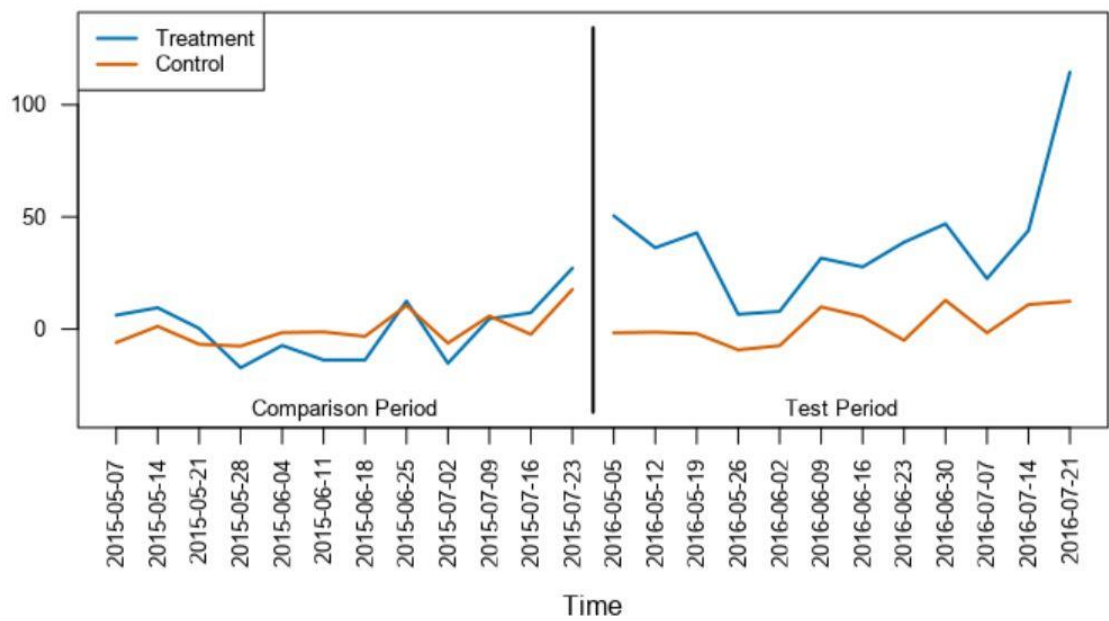
West Region:

Lift Analysis for Weekly Gross Margin

| Lift | Expected Impact | Significance Level |
|-------|-----------------|--------------------|
| 37.9% | 527 | 99.5% |

Time Comparison Plot of Weekly Gross Margin

% Difference from Comparison Period Average

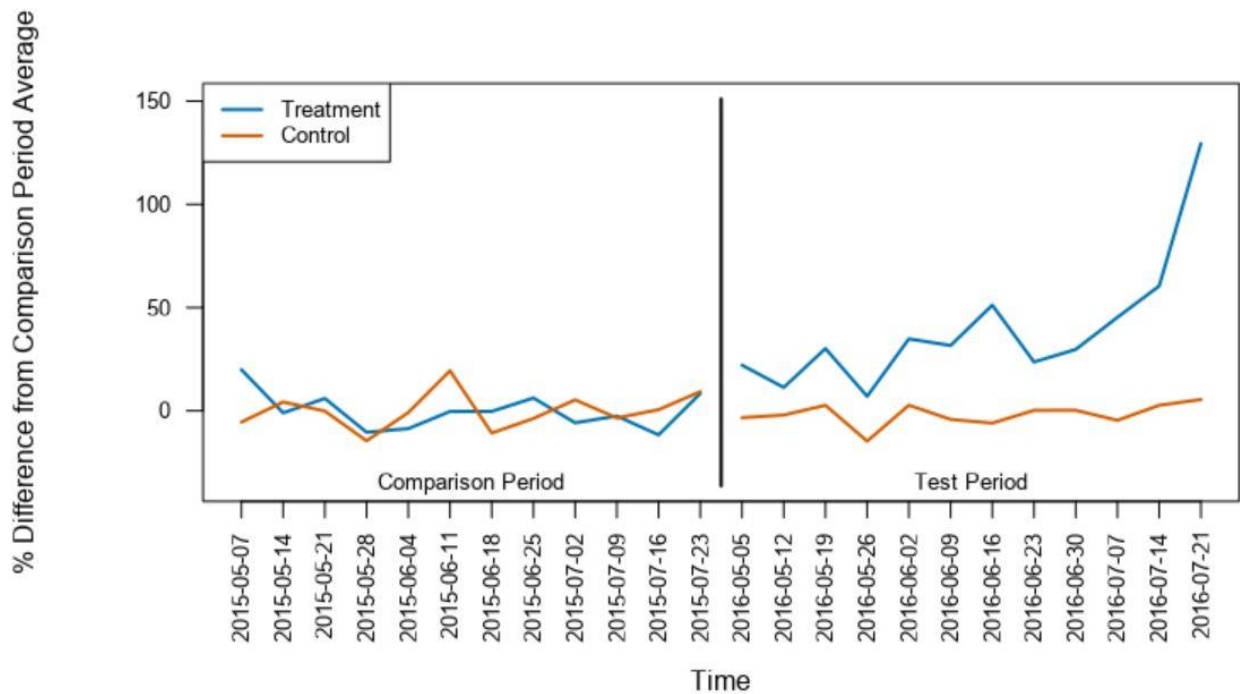


Central Region:

Lift Analysis for Weekly Gross Margin

| Lift | Expected Impact | Significance Level |
|-------|-----------------|--------------------|
| 43.5% | 836 | 99.6% |

Time Comparison Plot of Weekly Gross Margin



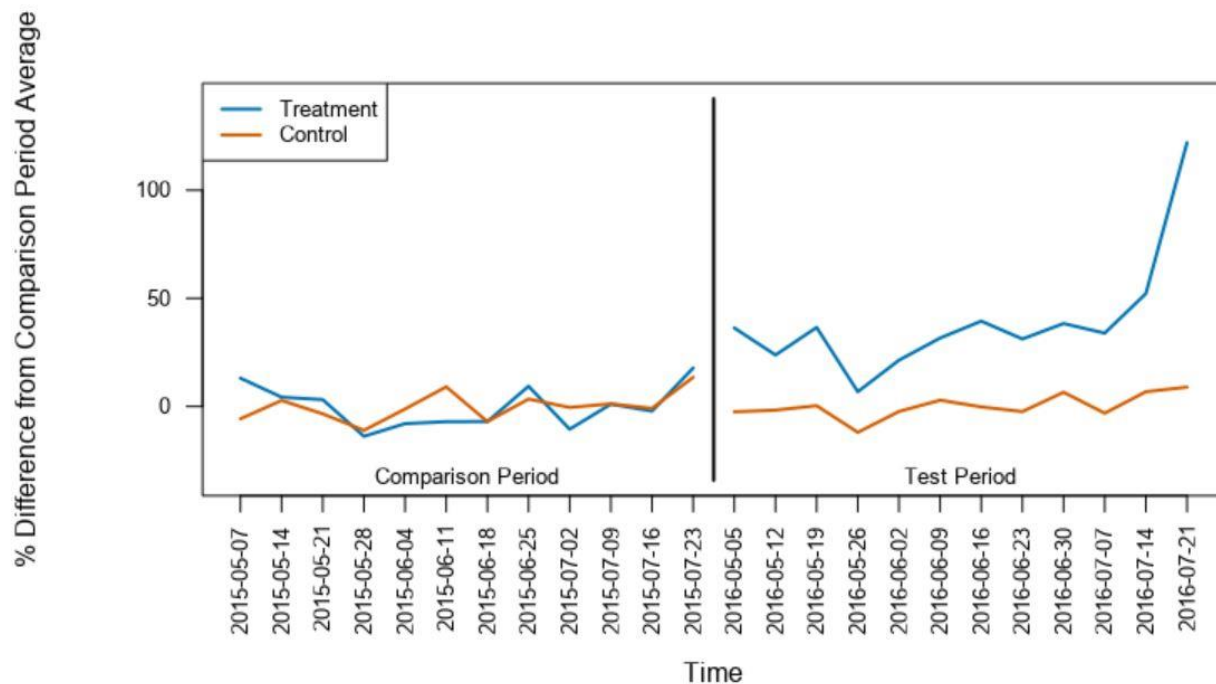
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West and Central Region:

Lift Analysis for Weekly Gross Margin

| Lift | Expected Impact | Significance Level |
|-------|-----------------|--------------------|
| 40.7% | 681 | 100.0% |

Time Comparison Plot of Weekly Gross Margin



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

The above three report shows that updating the menu along with television advertising would result in 37.9%, 43.5% and 40.7% improvement at a statistically significant level of 0.05 for the West, Central and both West and Central regions, respectively. All these improvements are way over than the 18% increase in profit growth required by the company. Therefore, the company should roll out the updated menu to all stores.

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

West: lift (37.9%), statistical significance (99.5%)
Central: lift (43.5%), statistical significance (99.6%)

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

40.7%

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Alteryx workflow:

