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Analysis of the Test on the Measure Sum_Sum_Sales

Test Start Date: 2015-02-06
Test End Date: 2016-07-22
Additional Information:

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Test Summary

The average percentage change in Sum_Sum_Sales was 6.6% for the treatment units in the test period relative to the comparison period. This same measure was -0.2% for the control units, with the difference between the treatment and control units being 6.8%, which is highly statistically significant. More detailed summary statistics for the treatment and control groups are contained in the first table (which immediately follows), while the details of the hypothesis test of a significant difference in the mean average percentage change in Sum_Sum_Sales is contained in a table at the end of this report.

A comparison of the treatment-control pairs indicates an average lift in Sum_Sum_Sales for the treatment units over the control units of 6.8%, which results in an expected impact of 240 on Sum_Sum_Sales, with 95.0% of the treatment-control pairs exhibiting a positive lift for the treatment units.

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Lift Analysis for Sum_Sum_Sales

| Lift	Expected Impact	Significance Level
6.8%	240	99.8%

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Summary Statistics for Sum_Sum_Sales by Test Group

| Statistic	Treatment	Control
Average	6.59	-0.20
Minimum	-0.73	-8.64
Maximum	13.03	7.74
Standard Deviation	4.97	4.03

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Plots of the Test Results

In the dot plot(s) below, each column of dots gives the percentage change in Sum_Sum_Sales from the same period as the test period, but one year earlier, and the test period for a treatment unit and the control units assigned to that treatment unit. An examination of a dot plot chart allows for a rapid determination of whether (and which of) the treatment units outperformed the control units with respect to Sum_Sum_Sales.

Dot Plot of the Percentage Change in Sum_Sum_Sales
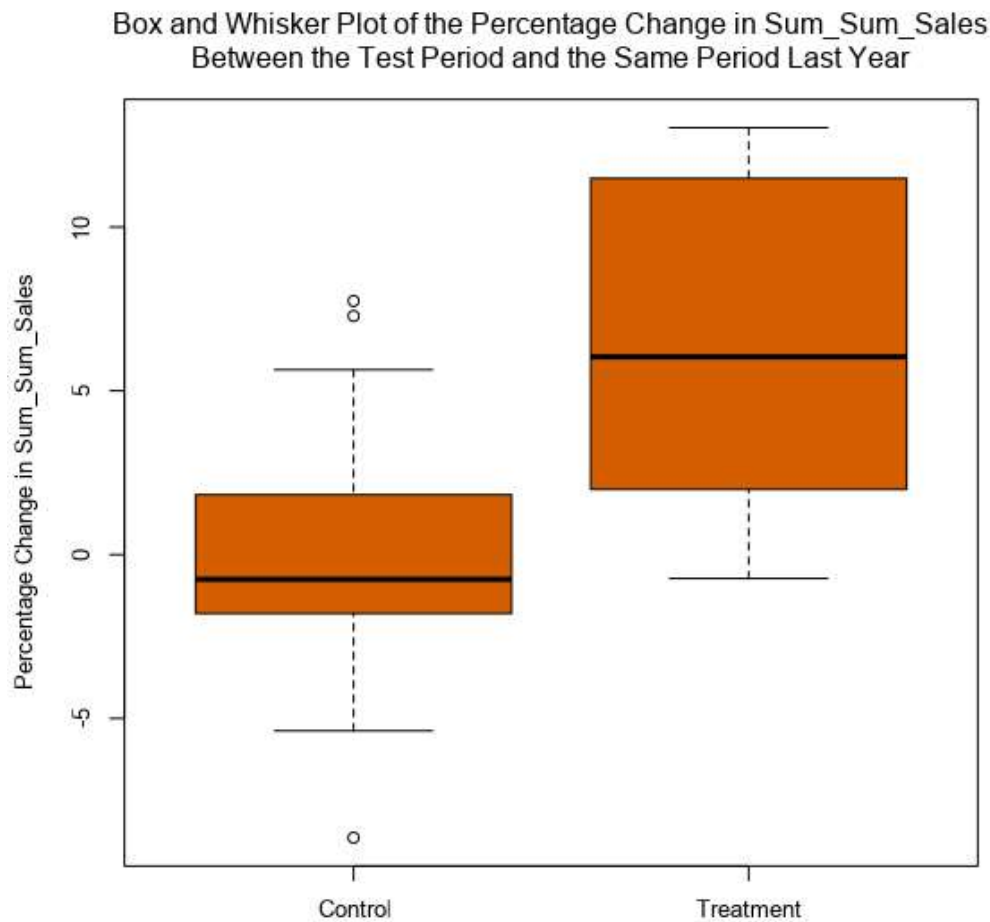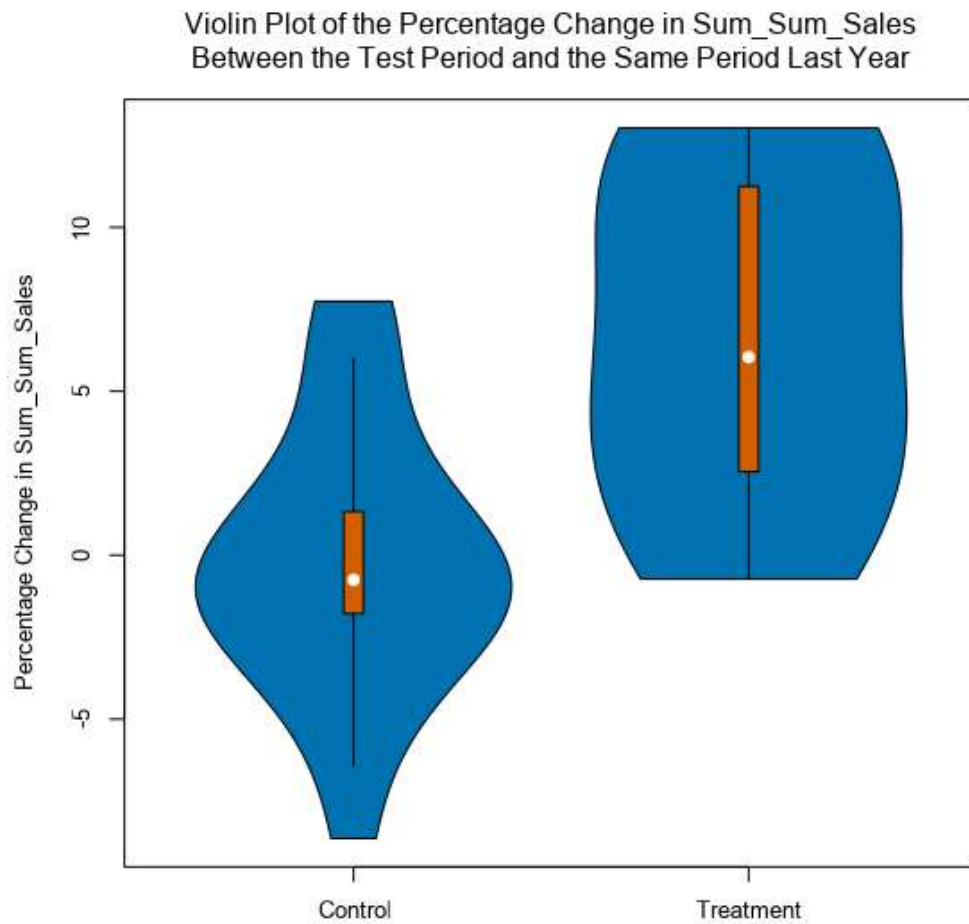### Between the Test Period and the Same Period Last Year
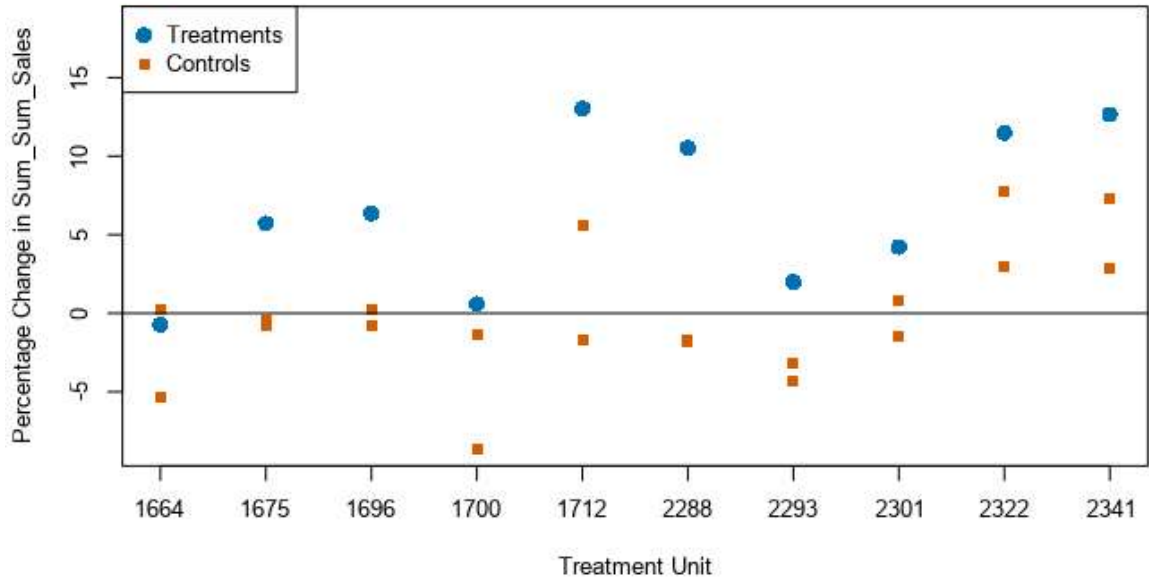
Time Comparison Plot of Sum_Sum_Sales
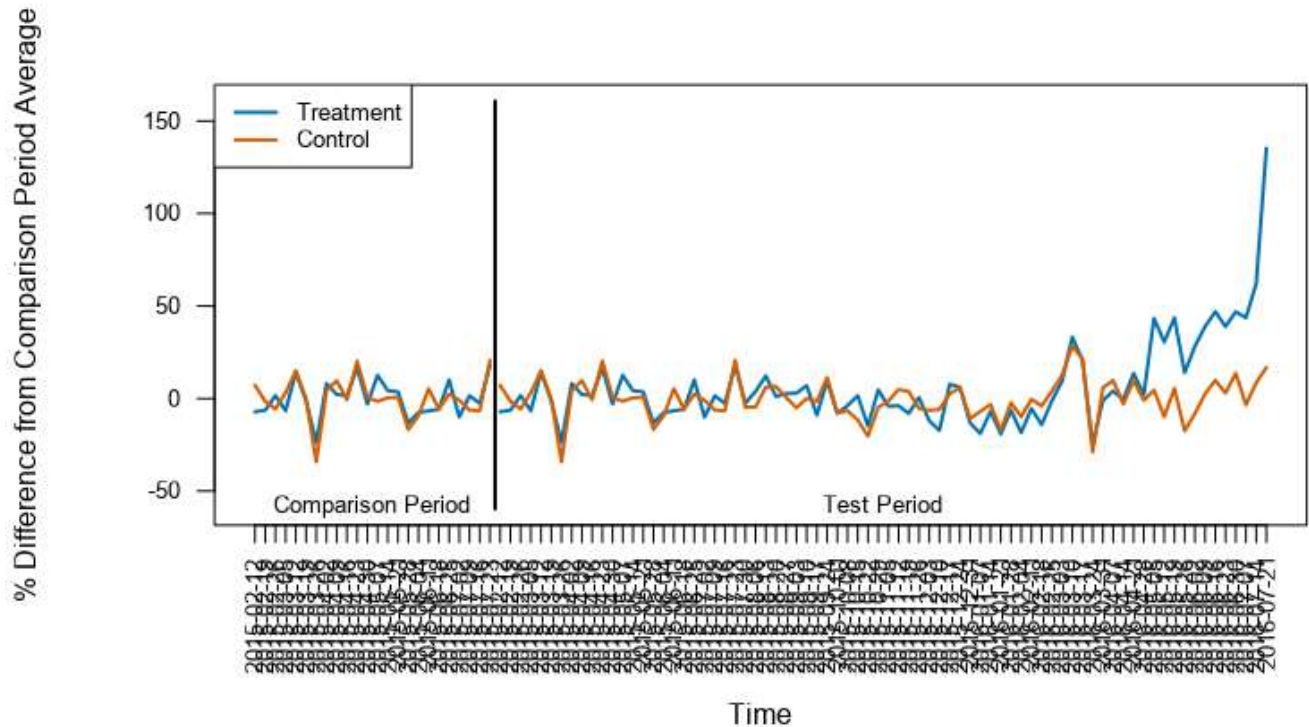
The time comparison plot provides a visualization of the average effect of the test treatment across the test units for the performance measure of interest. The performance measure is normalized to be the percentage difference between the value of that measure in each reported time unit and the average of that measure for the entire comparison period, and then averaged across stores of each unit type (treatment or control) in each reported time unit.

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

The box and whisker plot provides information about the distribution of the percentage change in Sum_Sum_Sales between the test period and the same time period one year earlier for both the treatment and control units. In the plots, the bottom and top of the orange box are at the first and third quartiles, and the line inside the box is at the median for each test group. The vertical bars that extend above and below the box indicate the range of the data that is within 1.5 times the interquartile range (where the interquartile range is the difference between the values of the third and first quartiles).

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Violin Plot of the Percentage Change in Sum_Sum_Sales
Between the Test Period and the Same Period Last Year

The violin plot provides information about the distribution of the percentage change in Sum_Sum_Sales between the test period and the same time period one year earlier for both the treatment and control units. The width of each "violin" for a given value of the Percentage Change in Sum_Sum_Sales is based on the local density of values near that point. Where the violin is thick there are a number of test units with similar values for the measure, while there are few values for the Percentage Change in Sum_Sum_Sales where the violin is comparatively thin. The inner (orange) portion of each violin is a box and whisker plot of the data, where the bottom and top of the orange box are at the first and third quartiles, and the white circle inside the box is at the median for each test group. The vertical bars that extend above and below the box indicate the range of the data that is within 1.5 times the interquartile range (where the interquartile range is the difference between the values of the third and first quartiles).

Dynamite Plot of the Percentage Change in Sum_Sum_Sales
Between the Test Period and the Same Period Last Year
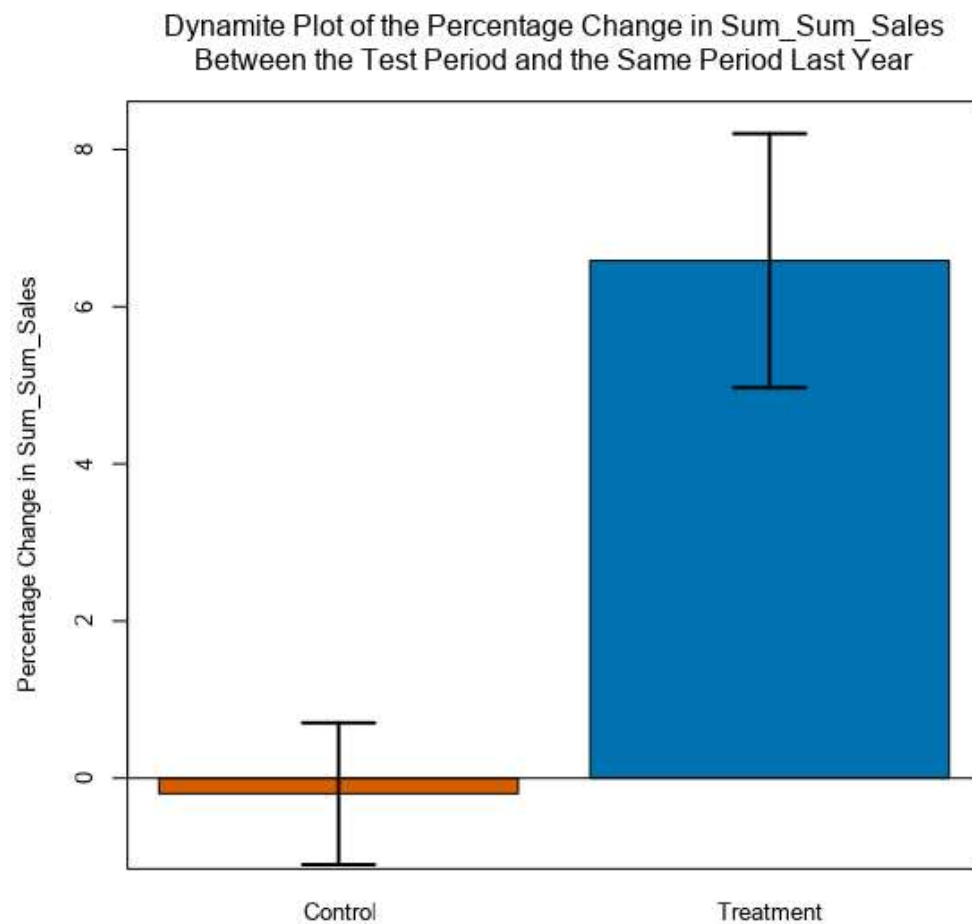
In the dynamite chart the blue bar gives the mean value of the percentage change in Sum_Sum_Sales between the test period and the same time period one year earlier for both the treatment and control groups, while the black error bars provide a one standard error range around the mean values. If there is a statistically significant effect associated with the treatment, then the error bars for the treatment and control groups should not overlap.