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MGSC410 - Houldsworth

Assignment 4

Walmart/Target Competitor Markets

This analysis evaluates sales and location data of a store that represents a Target/Walmart style Big Box store. A different firm wants to enter a market where one of these competitor's stores exist. The code methodology can be found in the analysis_code.pdf.

Executive Summary:

The location predictions are computed by finding the revenue of a similar location based on metrics such as availability of land, consumer income, and a lack of density.

The two tables below are different methods to find the top locations for new stores. There are only 9 recommendations for the cost adjusted revenue because there was not accurate data. If the firm is revenue maximizing, the should move to San Diego first. If the firm needed to keep overall cost into account, Denver should be picked.

Area Name	Predicted Weekly Revenue
San Diego	29203.4
Denver	28567.09
Austin	28064.31
Houston	25101.11
Salt Lake City	24084.04
Los Angeles	23629.06
Dallas-Fort Worth	23132.1
Cleveland	21340.59
Chicago	20859.75
Philadelphia	20069.15

Area Name	Predicted Weekly Revenue to Expense Ratio
Denver	20.05
Houston	19.39
San Diego	19.08
Dallas-Fort Worth	19.03
Los Angeles	18.35
Chicago	17.9
Atlanta	16.59
Philadelphia	15.95
Tampa-St Petersburg	10.92

The cost adjustment is done with the cost of living for each of the cities. Because this is a general store and will have to use land and employ people, cost of living is a good metric to appropriate overall cost.

The analyses below also bring to fact that geographically close markets are beneficial in terms of logistics and networking. For this reason, selecting an area like Texas or California/Utah/Denver can be beneficial. This is mitigated by the fact that 10 locations need to be picked, not 10 stores. If 10 stores needed to be picked together, Denver, San Diego, & Los Angeles would be picked with 4, 3, and 3 stores to each. Or Texas could be picked with Houston, Dallas, & Austin to be working together with 4, 3, and 3 stores for each.

To Keep in Mind:

Data: Store weekly sales data, daily business environment data, Designated Market Area data.

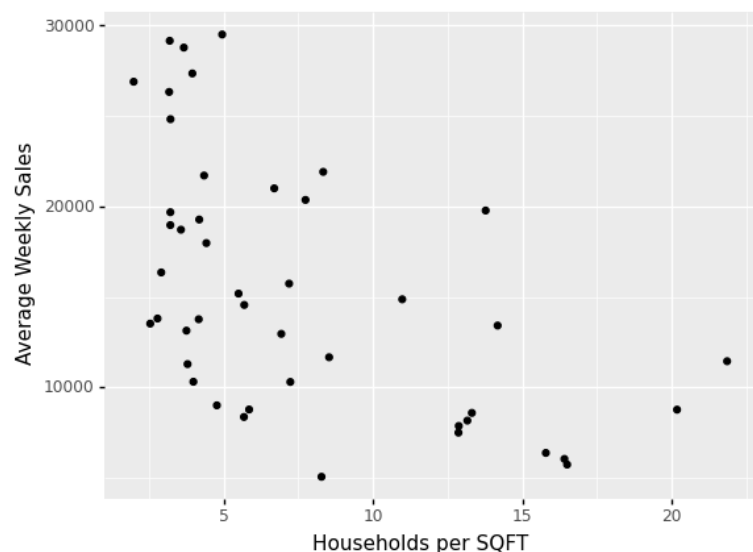
Problem: To find ten best markets for Walmart competitor. Aiming for middle to high income households.

Constraints Can only enter into existing markets. 10 best locations for new stores.

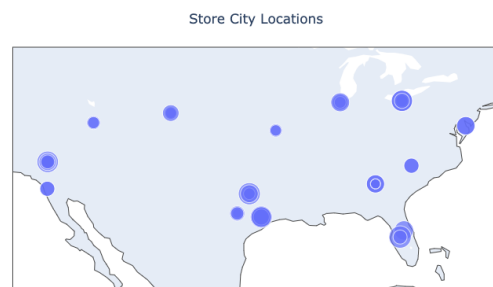
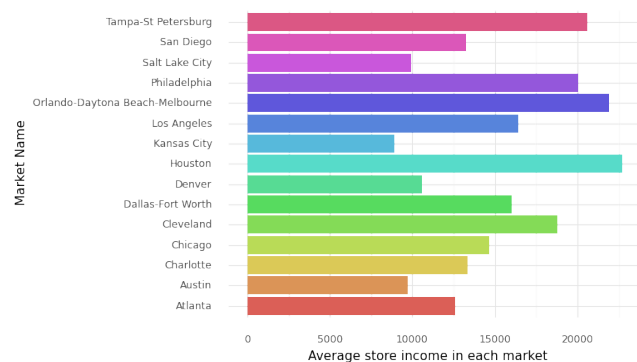
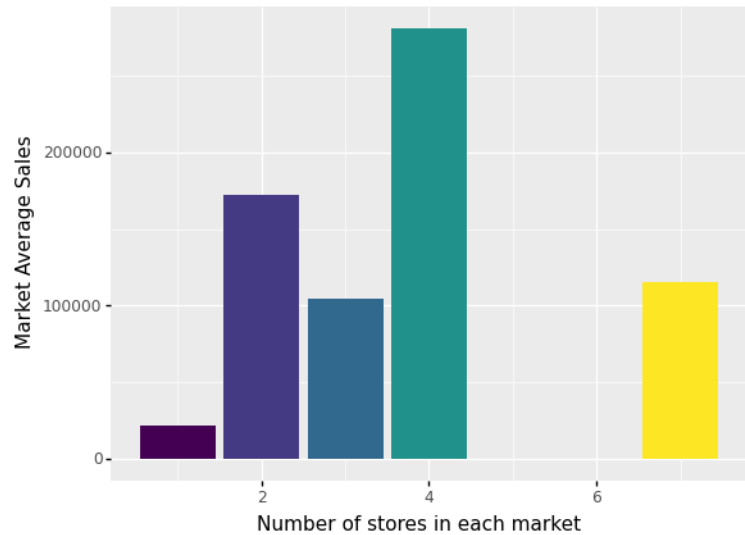
Assumptions: Markdowns, department effects, and holiday effects are not significant on average sales between locations. This model is predicting revenue. Not profit.

Further Analyses to Support Predictions:

Density of stores in a market matters. When an area has more stores, it has no impact on sales cannibalization or expansion. If anything logistically, it would be beneficial to have multiple locations together. A regional brand is not a bad thing. The actual density of a single



store, as measured in households to square feet, negatively impacts sales. Big stores do better. Take a look at the two plots below. The scatterplot below shows that a low density of households per square foot tend to sell more in the Walmart/Target format. This is holding land cost constant, and is adjusted in the Revenue to Expense ratio in the final suggestions. The second plot shows average weekly sales as a function of the number of stores in a market. Assuming it is sufficiently big, a market can sustain multiple stores. More stores build a network and sell more. Roughly speaking a normal curve can be overlayed on the box plot, with a mean around 4. A market needs to be big to sustain this. Because there is no significant sales cannibalization present, multiple stores are beneficial in a large market such as the ones suggested.



When stores are together in geographical areas, they do better, here is a map of the existing locations. If geography, transportation costs were a factor then, selecting stores in an area would be beneficial.

If a store is making a lot of revenue, they probably have a desirable characteristic. The model is trained off of the data to the right to pick markets that make more money in each store. The outcome variable of the models is predicted revenue.

Conclusion (pulled from the code output)

If you've been to new locations for big box stores, my suggestions are not unique. Large big box stores are popping up in new areas and selling a ton. Big stores, highly served, and rich customers are indicators of a store that sells a lot. Some of these variables are not confounding variables, but they are correlated and are indicators. You still need great service, and you still need the customers.

For Future Analyses:

1. Allow for use of new locations.
2. Do time series analysis on how the stores do.
3. Use data to build new store that sells well. Take elements of existing stores and turn them into different stores.
4. Build this model with cost to do business, it assumes the firm is revenue maximizing and is not profit oriented.