Capstone Project- The Battle of the Neighborhoods (Week 1)

High-Grading Optimum Location Zones for a Startup Home Improvement Retailer

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August 21, 2020

I. Introduction

1.1 Context

The U.S. home sales market continues to be robust. According to the National Association of Realtors, 5.34 million existing homes were sold in 2019, along with 682,000 newly constructed homes. Both contexts support significant investment in home construction, renovation, and maintenance materials. In consideration of the capitalization of a newbuild home improvement retailer, it is vital to be proximal to zones of high newbuild and home renovation and maintenance consumer spending. The patterns of new home construction are often correlated with economic growth and the increase of employment opportunities. As communities grow, the increase in consumption spending grows. This is particularly relevant in areas where new construction and renovation and maintenance spending is robust. Shopping at one retailer over another is often a function of a variety of factors, but understandably convenience is a key consideration for customers. Each year, millions of homes are sold, constructed, or are renovated or repaired. These processes require materials, parts, and expertise that home improvement retailers can provide. The importance of siting a store to garner revenue from all of these activities while being sufficiently distant from competitors so that local activities increasingly rely on your store is one of many factors a company may consider in determining where to locate a new store. It provides a home improvement retailer extensive benefit to be able to predict where optimal zones to build a new store might be. This information can then be incorporated into a wide range of other factors to yield a final business decision.

1.2 Business Problem

In this project we will try to derive a high-graded list of optimal locations for a home improvement retailer. This report will be targeted to stakeholders considering expansion into the home improvement retail market in Houston, Texas, USA. There are multiple well-established home improvement retailers operating in Houston. For this initial exercise, we will consider optimality as a function in part derived from proximity to zones of higher home construction, renovation, and maintenance spending and distance from competing home improvement retail stores. The stakeholders are likely interested in zones that may be underserved in this regard in multiple categories as ideal locations. However, assuming the optimal conditions are met, we would like to locate the store as close to high-population zones within the city to ensure adequate day-to-day foot traffic. We will use multiple data science processes to generate a high-grade list of the most promising neighborhoods for potential sites. Subsequently, we will highlight key features of each area, including the advantages and disadvantages,

so that the best possible area can be selected. Foursquare data will be crucial to this process, as it allows the depiction the location of the hypothetical home improvement retailers competitors, so that the potential identification of optimal but underserved locations can be made.

1.3 Stakeholders

Stakeholders in potential home improvement and home construction suppliers would be interested in siting their stores/facilities in optimal locations to garner maximum revenue and market share. An accurate prediction of the location of these sites would bring competitive advantage. Furthermore, the analysis of such siting criteria and findings may be of interest to a variety of related interests, such as home builders and real estate professionals.

II. Data

2.1 Data Sources

Multiple factors influence the decision of a stakeholder on where to site a potential store. This analysis is purposed to provide support to that process by identifying optimum outcomes based on selected criteria. Key factors in this context include:

1) Number of existing home improvement retailers in a city neighborhood
2) Their proximity to zones of high construction, consumer spending, renovation, and maintenance
3) Distance of neighborhood from concentrated population zones
4) Housing listings
5) Economic growth
6) Proximity to existing shopping centers for convenience of access

For this project, I will source data from the following locations: The U.S. Census Bureau, the U.S. Internal Revenue Service, the National Association of Realtors, and Foursquare.

1) Foursquare shall provide the data for the number of existing home improvement retailers in a city neighborhood, distance of neighborhoods from concentrated population zones, and proximity of existing shopping centers for convenience of access.
2) National Association of Realtor's data provided from Realtor.com shall provide number of housing listings by zip code.
3) U.S. Internal Revenue Service shall provide population data by zip code used to determine density proximity to potential sites based on number of filed income tax returns.
4) U.S. Internal Revenue Service data for two subsequent years shall provide economic growth indications based on the number of returns by income level in a given zip code year-over-year.