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| Haystacks.ai |
| The Convenience Factor |
| Residential Valuation Using Machine Learning |
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| **Daniel Immediato and Sebastian L. Ortiz** |
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| ***Abstract****: TBD* |

# Literature Review

Shahzad et al. argues that a consumer determines choosing a store based on its "utility", which is broken down into convenience (distance), “assortment”, prices, quality of products, and advertisements/branding. All of these factors contribute to store choice. More specifically, “price and location” were found to be statistically significant influencers on consumer choice. 53% of the respondents had their store type preference towards small departmental stores, where location, prices, and variety were linked. 80% of respondents preferred the same store, while 67% of respondents shopped from stores "within their residential area". Respondents who preferred chain departmental or corporate retail/wholesale stores were only moderately affected by location. This means that, as income level increases, location matters less (Shahzad et al. 2015).

Chamhuri and Batt also confirmed the factors most influential in consumer choice of retail food are proximity, price, and food quality. However, they also added the demographic characteristics of consumers. Argued modern retail outlets are first built in large metropolitan cities to serve "those from abroad" and "high income earners". This strategy is designed to create more familiarity with consumers. High income consumers are more able to change location where they shop, as they have more storage and transportation options, preferring one-stop shopping. Lower income groups value social interaction and traditional retail formats. Asserts "consumers will decide where to shop based on the minimum travel time to the nearest retail store". Modern retail formats in central locations attract higher income earners that have access to cars. Alternatively the "traditional" retail format is chosen due to closer proximity, as lower income individuals have limited storage capability and can't afford travelling costs (Chamhuri and Batt 2011).

Palma et al. emphasizes the statistical significance of price and distance of the grocery stores. They divide stores between three categories, those with higher quality and higher price (type A), those with medium quality and medium price (type B), and those as low quality and low price (type C). All grocery stores were located within six miles of a planned Walmart Supercenter. Most people preferred the store closest to them, and most respondents chose the store with the higher priced, but higher quality items with greater variety. The larger the household, the more likely they were to shop at type B stores, while higher income families were more likely to shop at type A stores. "Education, gender, and age appear to have little systematic effect on store choice” (Palma et al. 2003).

Brown says that service quality (the type A store) and convenient location is positively correlated with first-time loyalty with the "traditional" grocery chains. Shoppers establish "routine patterns of behavior", where shoppers with fewer are restricted to shopping to closer grocery stores and a less variety of them. Alternatively, low prices and variety of offerings (type B and C) leads to shoppers preferring supercenters (Brown 2004).

Stores that serve low-income shoppers are smaller, older, and offer fewer time-saving services. In urban locations, they lag behind other stores in regards to inventory control, parking spaces, and operating hours. Prices in nontraditional stores were "consistently lower" than traditional ones, down by 25% for products like eggs and milk. Defines traditional as:

1. Conventional supermarkets, those that produce at least $2 million in annual sales and carry about 15,000 in items.

2. Superstores, a larger supermarket that is 40,000 square feet and can sell 25,000 items.

3. combined food/drug store, a superstore that gets "85% of sales" from food.

4. Warehouse store, a low-margin grocery store that offers reduced variety and streamlined merchandise.

5. Super warehouse, a high-volume, hybrid warehouse offering full range of services.

6. Limited-assortment food store, a low-priced grocery that only has 2,000 items.

7. Specialty store, specializes in a specific food category (EG ethnic food or health food).

Defines non-traditional as:

1. Supercenter, a food-drug store combination with mass merchandise. Also sells nonfood, at least 40% devoted to food and about 170,000 square feet in size.
2. Wholesale club, membership retailer hybrid with limited variety in a warehouse environment. 40% of products devoted to grocery, usually in bulk sizes and about 120,000 in square feet.
3. Mass merchandiser, primarily sells household items, but may also sell packaged food products.
4. Dollar store, a limited store that sells variety of general merchandise, including food products (Leibtag 2005).

Survey done to assess grocery preference in North Georgia and the Atlanta Metro counties. For the survey, stores known to have grocery formats were identified/grouped into several store type categories: regional chains (i.e.,Publix, Harris Teeter, Piggly Wiggly, BiLo, Ingles, Bells, Earthfare), warehouse clubs (i.e.,Costco, Sam’s Club, BJ’s), national chains (i.e., Trader Joe’s, Whole Foods, Kroger (and affiliates)), neighborhood pharmacies (i.e., Walgreens, CVS, RiteAid), mass merchants or department stores (i.e., Target, WalMart), and convenience stores (i.e., 7-Eleven, Quick Trip) (Stegelin 2016).

Uses geocoded housing sales from 1988-2011 in Worcester, Massachusetts in comparison to 12 grocery stores and their effect on housing prices. These stores are named as Walmart and Target, but then categorized as "supercenters" (40,000 square feet and wide variety of products). Used a distinguisher of those more than 800 meters from each new store and those within 800 meters. Findings suggested that the grocery stores chosen were located in lower-priced neighborhoods, reflecting differences in housing structure and neighborhood characteristics. This means there was a DECREASE in average sales price in those houses within 800 meters. However, those houses located closer to grocery stores, within a specific distance, had a positive correlation with sale price. The houses were then divided into 0-199.9, 200-399.9, 400-599.9, and 500-800 meter distances centered on each of the grocery stores. It was concluded that those houses located between 400-800 meters and 0-399.9 meters experiences a statistically significant increase in sale price (Caceres and Geoghegan 2017).

**Summary**

1. **Proximity to Amenities**: Properties located near grocery stores and other essential amenities often command higher rental prices. According to several sources, typical grocery chains that would house higher-priced food items and attract higher income families would result in higher rental prices. This is because convenience is a significant factor for renters, and proximity to grocery stores can enhance the desirability of a location.  
  
2. **Neighborhood Demographics**: The type of grocery store can also influence rental prices. For example, areas with high-end grocery stores may attract a wealthier demographic, leading to higher rental prices. Conversely, areas with discount grocery stores may cater to lower-income residents, potentially resulting in lower rental prices. However, in one of the studies we noticed that, even in lower income neighborhoods, what can be considered a “type C” grocery store still resulted in higher rental prices.  
  
3. **Accessibility and Foot Traffic**: Locations that are easily accessible and have high foot traffic, such as those near popular grocery stores, can see increased demand for rental properties. This demand can drive up rental prices as more people seek to live in convenient locations.  
  
4. **Urban Development Trends**: In urban areas, the development of grocery stores can be a sign of neighborhood revitalization. As new grocery stores open, they can attract new residents and businesses, leading to increased rental prices over time. However, this depends on traditional versus non-traditional locations, which clash over their service quality (such as with parking space).   
  
5. **Market Dynamics**: The overall real estate market dynamics, including supply and demand, also play a crucial role. In areas where rental demand is high, the presence of grocery stores can further elevate prices.

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