LiveWell: Food Availability, Pricing, and Quality of Food in Greenville, SC Nicholas Oschman

Abstract

Obesity and the factors that cause it have become a major issue for public health officials in the United States. The purpose of this research is to determine the food store availability, the quality of foods, and the price of food for the Sterling and North Main neighborhoods in Greenville, South Carolina. The North Main and Sterling food environment maps highlight the differences related to food scores, socioeconomic status, race, and the educational level of residents. Food Stores with lower scores were found to be associated with areas with lower median income, higher proportions of minority populations, and lower levels of educational attainment for both neighborhoods.

Introduction

LiveWell Greenville is a partnership of several private and public organizations in Greenville County whose mission is to promote health education, while also engaging with partners to create policies, systems, and environments to make Greenville a healthier place to live, work, and play. This project helps in determining the presence of food deserts in Greenville by examining the local food environment for the Sterling and North Main communities in the context of their neighborhood economic, racial, and educational statuses. These results will provide the basis for developing a community action plan to address healthy eating and equitable food environments in Greenville. This data can be used by policy makers, public health official, and community planners in advocating for policy and environmental change. In addition to serving the local community, this project will help further food desert literature.

Literature Review

There is a growing body of research that examine the impact of the local food environment on the health of members in the community. Much of this research is focused on the concept of food deserts, or areas that have poor access to healthy foods. Walker, Keane, and Burke's (2010) review of food desert literature found four major implications relating to disparities in food environments. These findings are:

- (1) access to supermarkets
- (2) racial/ethnic disparities in food deserts;
- (3) income\socioeconomic status

(4) differences in chain versus-non-chain stores (encompassing factors associated with cost, food availability, and store type) Larson, Story, and Nelson (2009) and Moore et. al (2008) found that disparities in neighborhood access to food can influence dietary intake and obesity. Further, neighborhood racial/ethnic and socioeconomic composition have varied food environments which may contribute to health disparities (Moore and Diez Roux, 2006). These differences highlight the way in which the environment influences obesity and the need to address these issues in order to treat and prevent obesity, especially for poor, uneducated, and minority populations.

Methodology

Steps taken:

Collect LiveWell Nutrition Environment Measures surveys for North Main and Sterling Neighborhoods. These data show the type of food store, the availability of selected and/or recommended foods, the quality of foods available, price, shelf space, and other characteristics of the food stores open for business in Greenville during 2012. This data was gathered using the Nutrition Environment Measures Survey in Stores and Restaurants protocols. Import each set of data into <u>batchgeo.com</u> for geocoding. Geocoding is the process by which street addresses are converted into their associated geographic coordinates.

Make a map and download kml. A kml file holds geographic detail like points, line, and images that can be displayed on a map. Convert the kml file to a layer file with the using the kml to layer tool. This is what allows for the Food Store locations to show up on the map. Import ACS 5-year median income data for Greenville (2010) at the block group level.

Import ACS 5-year education (percentage of high school graduates) data for Greenville (2010) at the census tract level.

Import ACS 5-year race/ethnicity (percentage of minorities) data for Greenville (2010) at the block group level.

Join these data to Greenville County census tract and block group shapefiles.

Make choropleth maps of income, race, and education.

Add basemap street layer and make it 60% transparent.

Label Food Store scores next to the Food Store locations.

Separate Food Store Types into six categories: grocery store/supermarket (GS), convenience store (CS), fast food restaurant (FF), full service restaurant (FC), sitdown restaurant (SD), and specialty (SP).

Analyzed to determine the local food environments in terms of the food scores and residents' economic, racial, and educational attainment contexts.

Future Research

There are many other factors that have been associated with disparities in the food environment, such as health status (BMI) and access to other food sources like community gardens. Further research could also look into the smaller scale relationships of the median income, educational attainment, and the race/ethnicity breakdowns of the neighborhoods. Also, other neighborhoods' Food Stores in Greenville could be analyzed for a better understanding of the greater Greenville food environment.

Acknowledgements

Thank you to Dr. Alica Powers, Mike Winiski, and LiveWell for their guidance in the completion of this project and data.

EES201 – Introduction to Geographic Information Systems – Spring 2013, Furman University, Greenville, SC

Sterling Neighborhood

Sterling Neighborhood Food Score Type, Score, and Median Income by Blockgroup



Sterling Neighborhood Food Store Type, Score, and Percent Highschool Graduates by Census Tract





Sterling Neighborhood Food Store Type, Score, and Minority Percent by Blockgroup



Conclusion

Food Stores with lower scores were found to be associated with areas with income, a higher percentage of minority population, and a lower education for both neighborhoods. There are, however, exceptions to this finding. It is a to highlight the range in food scores for both of the neighborhoods, as well a food store available. North Main has an average score of 10.6 and 6 different Sterling had an average score of 11.3 and only three different store types. M further analysis is needed to develop a complete picture of these neighbor Greenville as a whole in terms of the food environment and its effects on behavior/intake and obesity in the neighborhood residents.

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IV. Results and Discussion



North Main Neighborhood Food Store Type, Score, and Percent Highschool Graduates by Census Tract



North Main Neighborhood Food Store Type, Score, and Minority Percent by Blockgroup



	Data Sources
lower median al attainment also important as the type of it store types. lore data and porhoods and n the dietary	1) Sterling and North Main Food Store and Score data from LiveWell
	2) ACS 5-year median income data for Greenville (2010) at the block group level
	3) ACS 5-year education data for Greenville (2010) at the Census tract level
	4) ACS 5-year race data for Greenville (2010) at the block group level
	5) Basemap street layer from: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013
	6) Greenville block group and Census tract shapefiles from www.census.gov
	All geocoding done by importing addresses into batchgeo.com.
	All maps created with ESRI ArcDesktop 10 (2013).

References