

# Food Access: An Analysis of Household Income and SNAP/EBT Accessibility in Greenville County, SC



Brooke Kritikos  
Introduction to GIS, Earth and Environmental Science, Furman University, Greenville, SC 29613



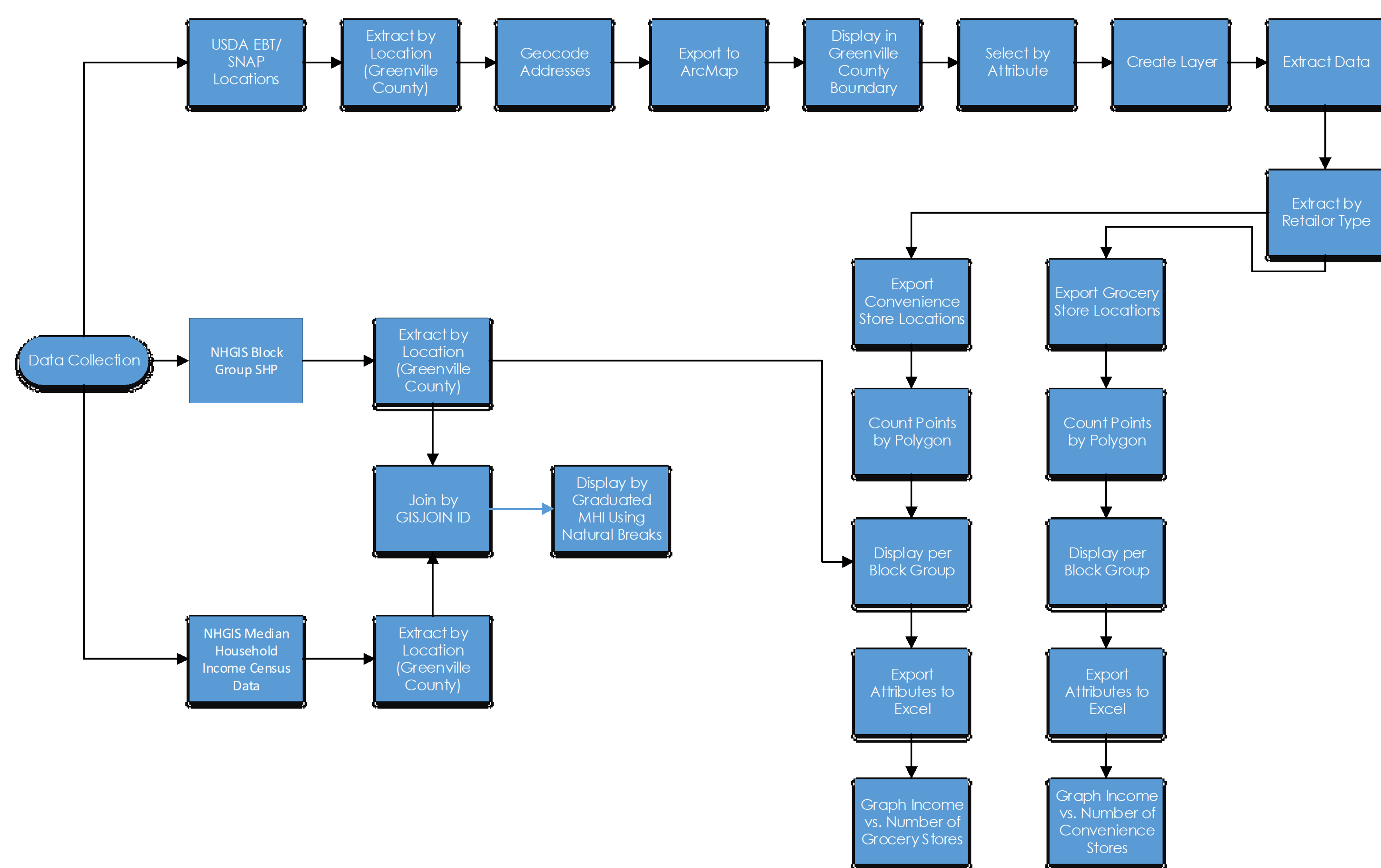
## Abstract

The Supplemental Nutrition Assistance Program (SNAP) is the largest federal food assistance program in the United States, serving over 44 million Americans in 2016. The primary goal of SNAP is to improve the dietary quality of low-income Americans to try and combat chronic disease such as obesity, heart disease, diabetes, etc. These chronic diseases particularly affect low-income populations that SNAP serves. SNAP benefits are received through Electronic Benefits Transfer (EBT) redeemable at food locations such as grocery stores, convenience stores, and drug stores. In this research, the relationship between obesity and food access in low-income communities, particularly noting that low-income neighborhoods do not have access to full service grocery stores that offer high-quality food is explored.

Locating potential areas for recommendations for new SNAP locations is crucial to increase the nutrient profile of low-income communities and bring in more fruits and vegetables to high need areas. The purpose of this study was to analyze the food landscape in Greenville County and make recommendations for improvements where they can be made.

This analysis utilizes EBT/SNAP location data for Greenville County from the United States Department of Agriculture, which was extracted from the state of South Carolina Data. Census data, in the form of median household income by census block group, was obtained through the National Historical Geographic Information System (NHGIS). It is the hope that this project can be used by anyone interested in adding to the food retailers in Greenville County, in particular looking at the highest need areas for SNAP availability based on median household income for particular block groups.

## Methods



## References and Data Sources

Nguyen, Binh T., et al. "The Supplemental Nutrition Assistance Program, Food Insecurity, Dietary Quality, and Obesity Among U.S. Adults." *American Journal of Public Health*, vol. 105, no.7, July 2015, pp. 1453-1459. *EBSCOhost*, doi:10.2105/AJPH.2015.302580.

Racine, Elizabeth F., et al. "Accessibility Landscapes of Supplemental Nutrition Assistance Program-Authorized Stores." *Journal of the Academy of Nutrition and Dietetics*, vol. 118, no. 5, May 2018, pp.836-848. *EBSCOhost*, doi: 10/1016/j.jand.2017.11.004

USDA EBT/SNAP Location Data: <https://www.fns.usda.gov/snap/retailerlocator>

US Census Data (Median Household Income by Block Group); South Carolina Block Group Shapefile: <https://data2.nhgis.org/main>

## Results

Food Retailers in Greenville County that Accept SNAP Benefits

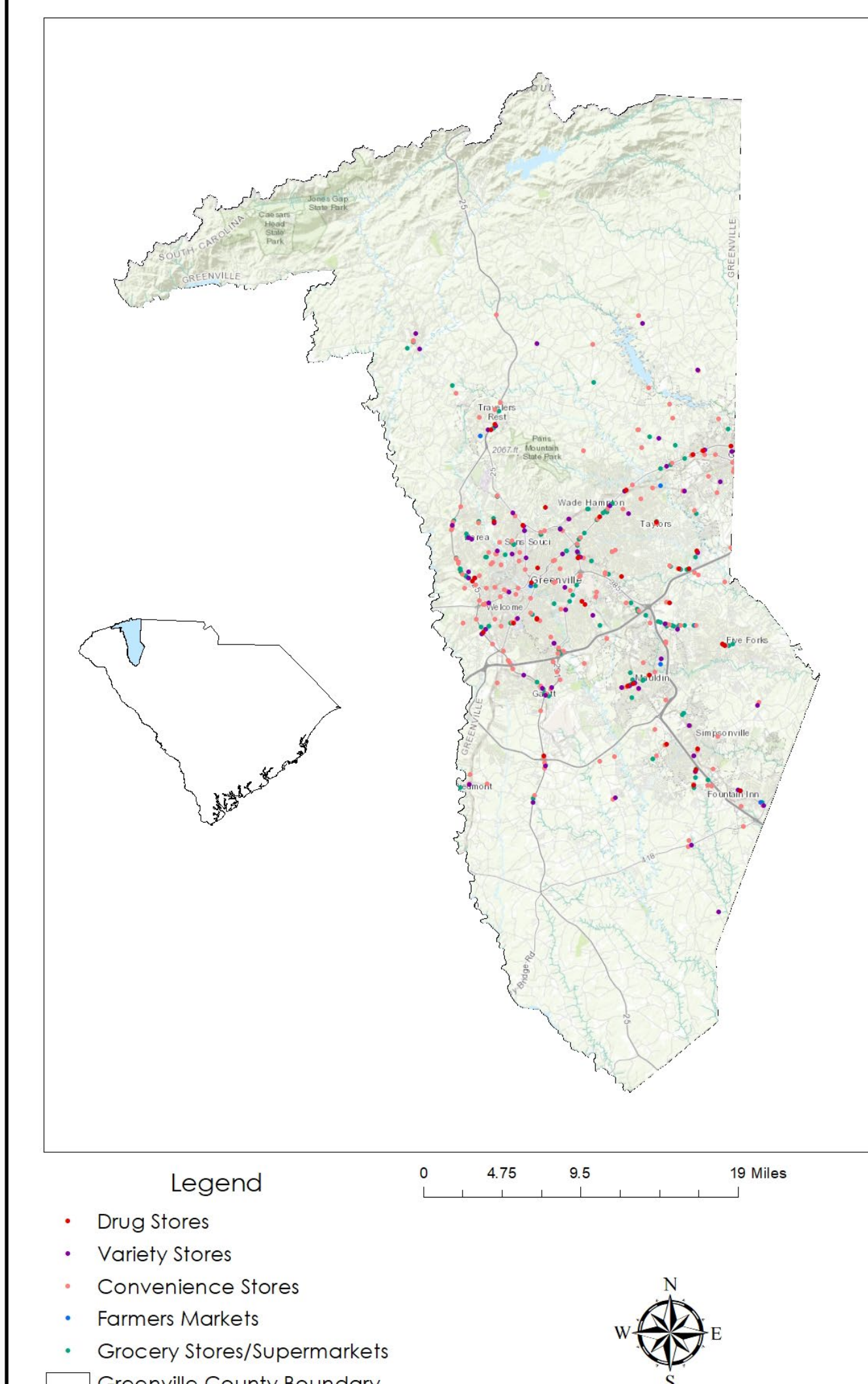


Fig. 1: This map displays all food retailers in Greenville County that accept EBT/SNAP through data obtained from the United States Department of Agriculture.

Median Household Income by Greenville County Block Group

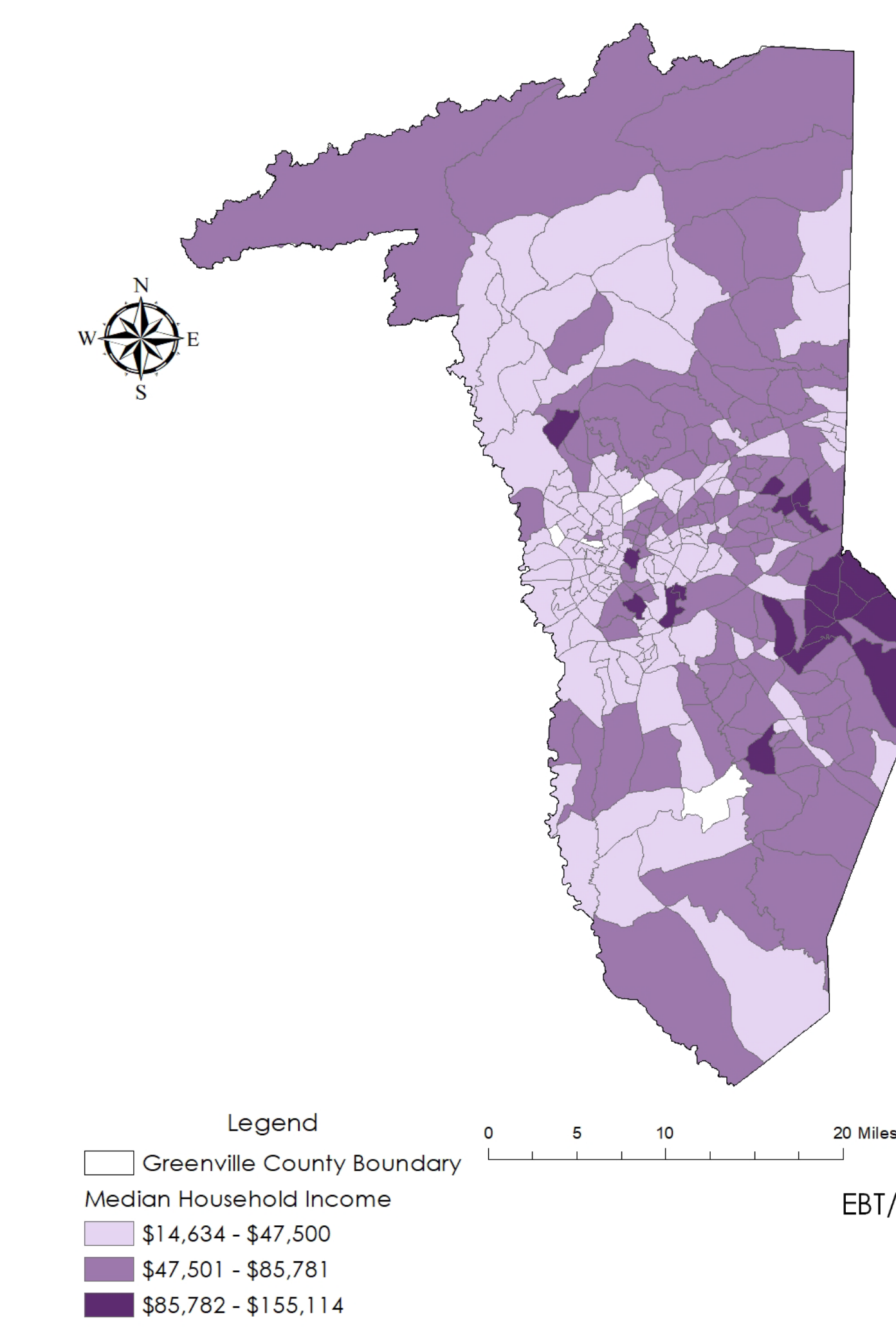


Fig. 2: This map displays median household income in Greenville County block groups from data obtained through the US Census and the National Historical Geographic Information Systems.

EBT/SNAP Eligible Convenience Stores in Greenville County Block Groups

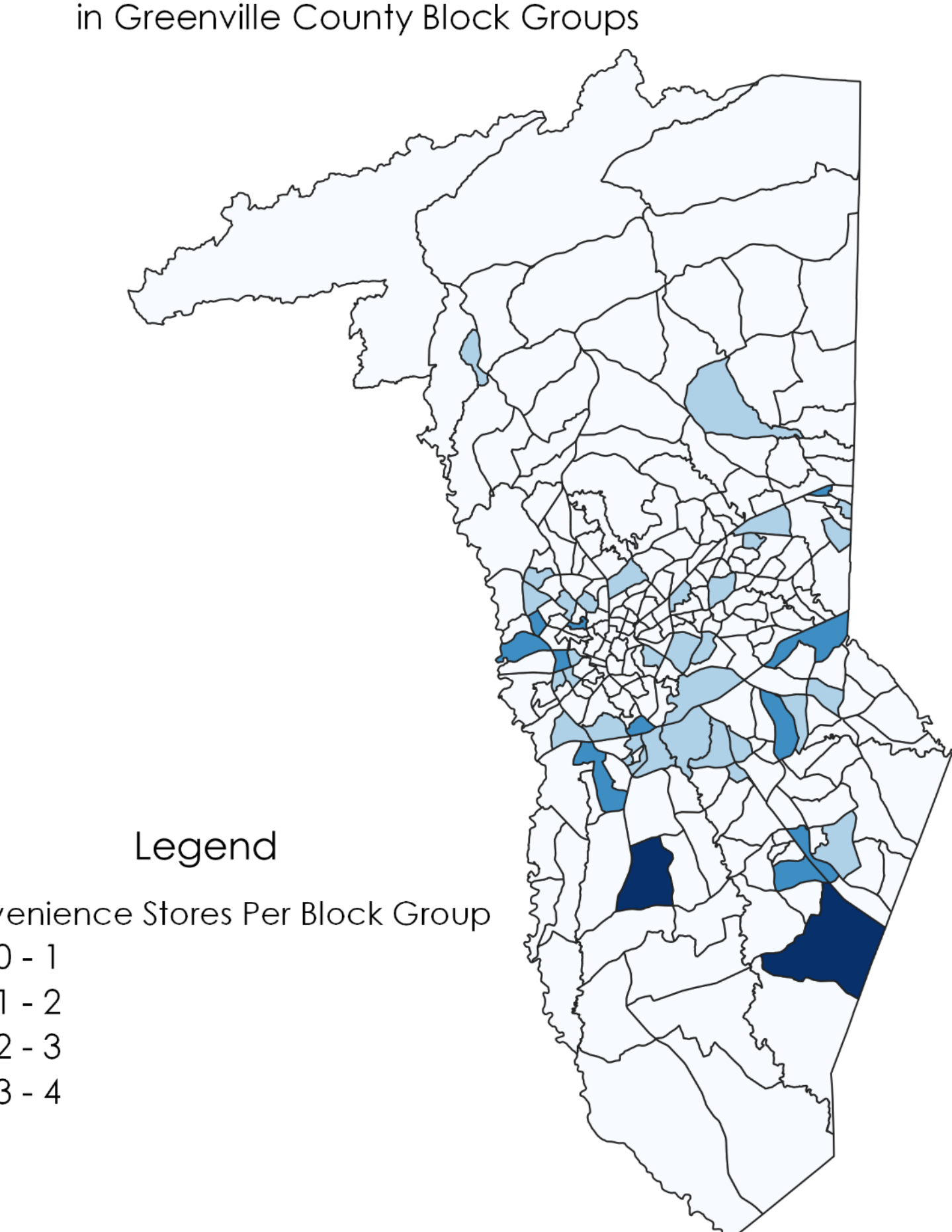


Fig. 3: This map displays the number of EBT/SNAP eligible convenience stores per Greenville County Block Group.

EBT/SNAP Eligible Grocery Stores/Supermarkets Per Greenville County Block Group

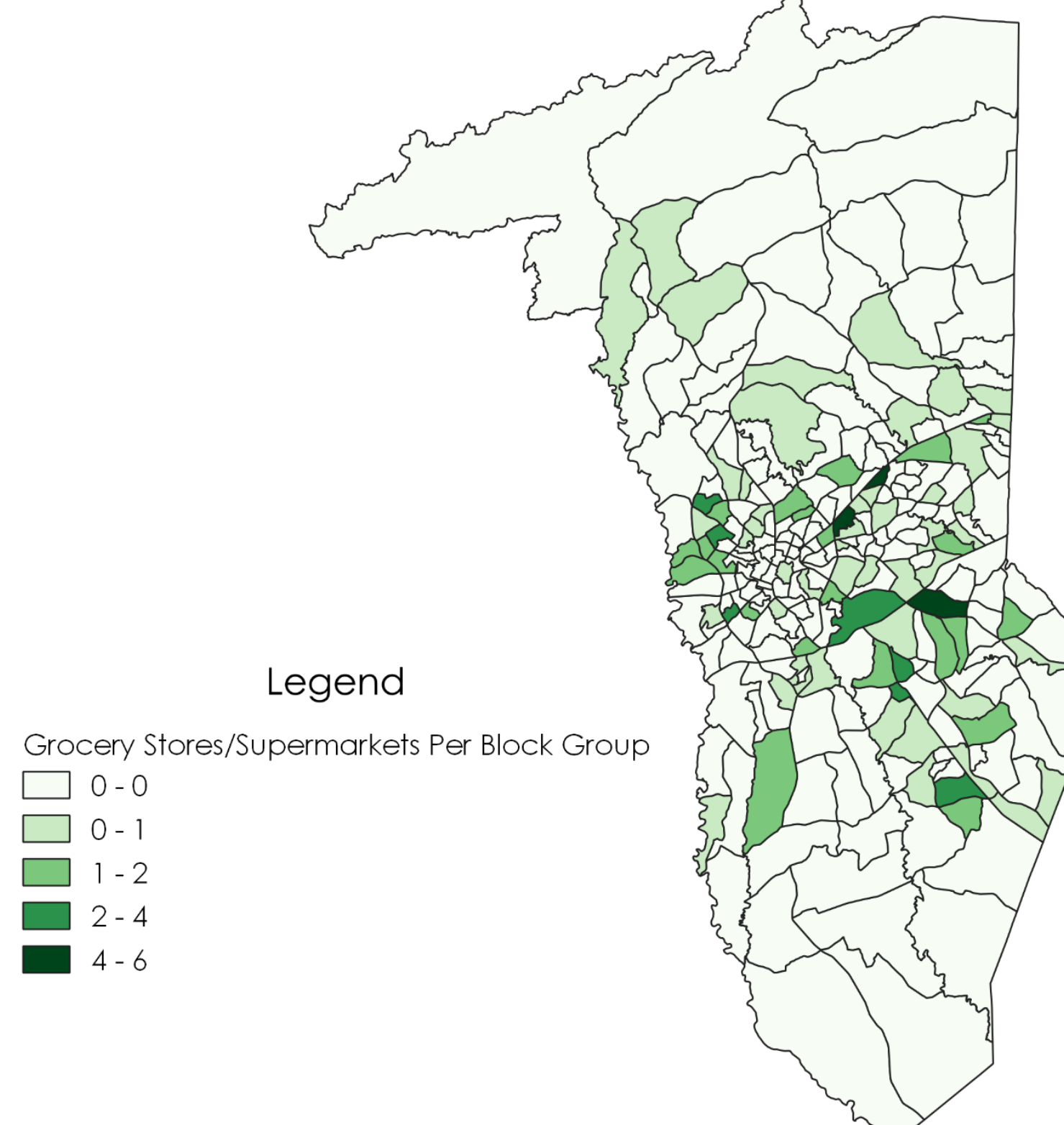


Fig. 5: This map displays the number of EBT/SNAP eligible grocery stores/supermarkets per Greenville County block group.

Number of Grocery Stores/ Supermarkets Per Block Group Based on Median Household Income

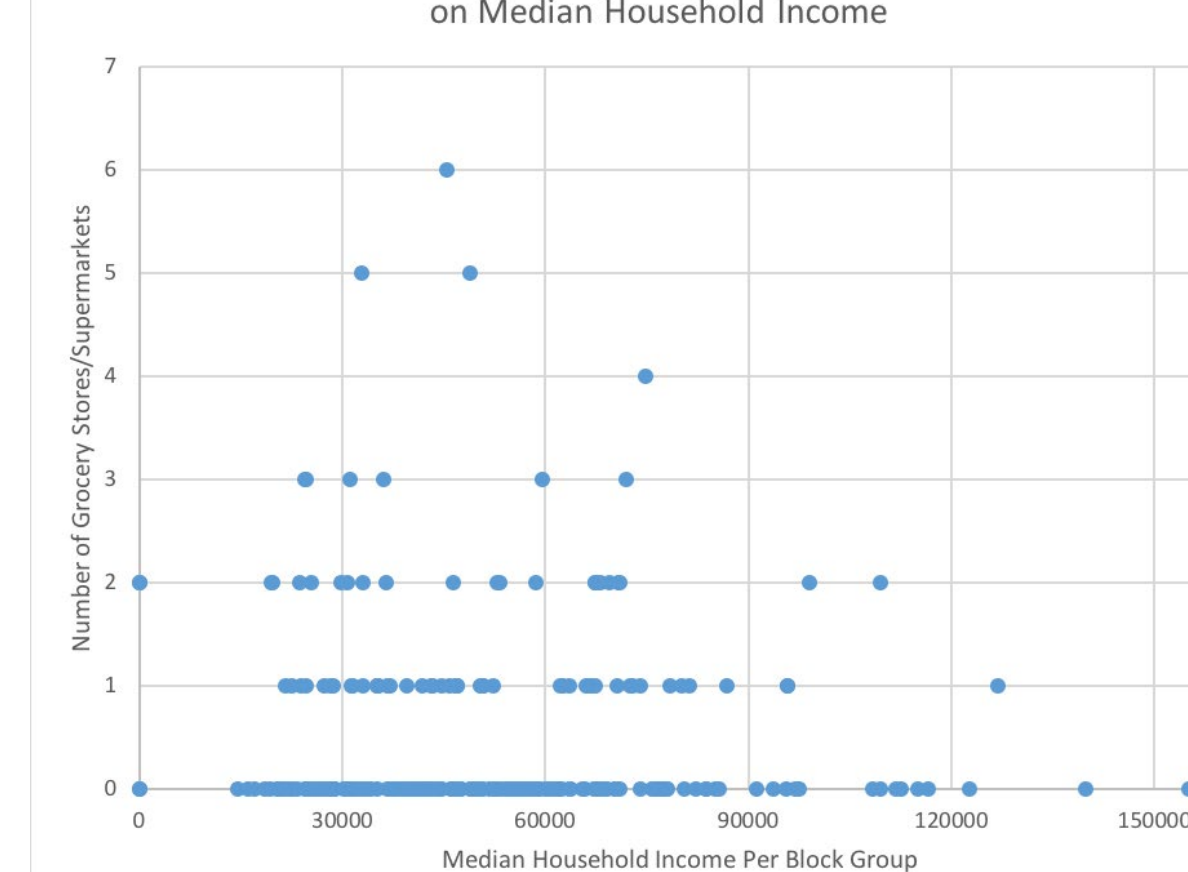


Fig. 4: This graph displays a visual of the number of grocery stores/supermarkets per block group in order by median household income.

Number of Convenience Stores Per Block Group Based on Median Household Income

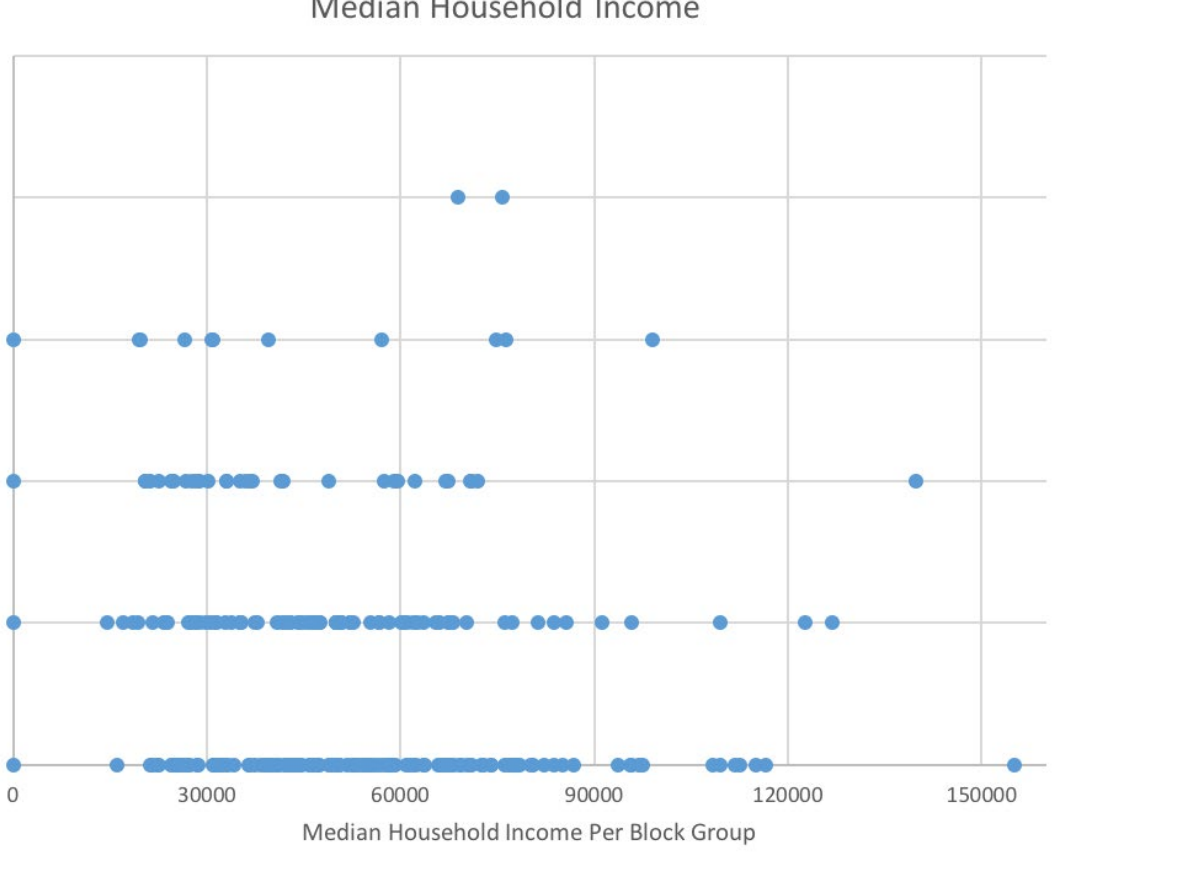


Fig. 6: This graph displays a visual of the number of convenience stores per block group in order by median household income.

## Conclusion

In analyzing EBT/SNAP data from Greenville County, one can see in Figure 1 the concentration of retailer locations in the middle of the county as displayed through grocery stores, farmers markets, convenience store, variety stores, and drug stores. The spatial variability in the concentration is analyzed through the lens of median household income (Figure 2). Data per retailers (convenience stores and grocery stores/supermarkets) were extracted to show the density per block group to gain a better understanding of the areas in Greenville with the highest number of specific retailers to try and explain a relationship.

Previous studies have clearly established links between low-income populations and an increase in consumption in energy dense foods. Providing these populations with food retailers in which they can purchase more nutrient-dense foods such as fruits and vegetables can help improve the health of such neighborhoods. Off the 255 block groups in Greenville County, only 80 have access to EBT/SNAP eligible grocery stores within the block group area, while 175 do not. There are 127 block groups that contain a EBT/SNAP eligible convenience store, while 134 do not. The large disparity in differences between grocery store/supermarkets sheds light on the limited access to full service grocery stores that sell more healthful foods.

Figures 3 and 5 illustrate the added concentration of grocery stores/supermarkets and convenience stores in the middle of the county, ignoring the northern and southern regions. One variable that might be able to explain this difference could be that those lower income block groups that have higher access to EBT/SNAP locations do so because they live in dense urban areas, whereas those out the outer county boundary have a more rural landscape. More research is needed, however, to analyze the effects that transportation has on accessibility to EBT/SNAP locations in differing income block groups. I would recommend the city taking into consideration the current location of grocery stores and neighborhoods in highest need of EBT/SNAP eligible stores. We need to do more to make healthy food accessible for all residents of Greenville County.

## Acknowledgements

I would like to thank Dr. Suresh for his patience and constant support throughout this project. I would also like to thank Lauren Prunkl for her guidance and knowledge to push me through the rough parts. Lastly, to Mike Winiski for his expertise and assistance in getting started.