Food Deserts in Davidson County

Mahesh Rao
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Who am I?

- PhD in Biological Sciences from Vanderbilt
  - Retinal Regeneration
- Data Scientist at Amira Learning
  - Machine Learning models for AI reading tutor for kids
- Program Manager for Analytics and Data Science at NSS
  - Data Analytics Instructor

If you want to follow along:

Github: https://github.com/raom1/nashville-food-deserts

- Food_Deserts_in_Davidson_County.pdf
- Nashville_food_deserts_datanerds.ipynb

Kaggle kernel: https://www.kaggle.com/raomahesh/nashville-food-deserts

Food deserts can be found surprisingly close to home

What is a food desert?

The USDA has defined characteristics for food deserts. Different analyses consider different characteristics, but most take into account at least some of the following indicators of access:

- Access to healthy food, like distance to and number of stores
- Individual accessibility, such as family income or vehicle availability
- Neighborhood indicators, such as average income of the neighborhood and public transportation

Bottom line: Low income and low access

https://www.ers.usda.gov/data-products/food-access-research-atlas/documentation/

How to identify a food desert?

Food deserts are defined at the level of the **census tract**

Th USDA defines a low-income census tract in multiple ways. The way used for this analysis is:

- The tract's **poverty rate is 20 percent or greater**

Three measures of food access based on distance to a supermarket are provided by the USDA. The one we can use for the analysis is:

- Low-income census tracts where a significant number (at least 500 people) or share (**at least 33 percent) of the population is greater than 1.0 mile from the nearest supermarket, supercenter, or large grocery store for an urban area or greater than 10 miles for a rural area.** This measure shows that an estimated 19 million people, or 6.2 percent of the U.S. population, live in low-income and low access tracts and are more than 1 mile or 10 miles from a supermarket

How to identify a food desert?

Here are the things we need for the analysis:

1. Census tract boundaries
2. Income information
3. If a census tract is **urban** or **rural**
4. Location of farmers markets and supermarkets

We can then combine these data to find the proportion of low-income census tracts that are too far away from sources of fresh food, resulting in a possible food desert.

Continued in Jupyter Notebook...

Future Directions

- Refine the criteria for food deserts by incorporating neighborhood indicators like public transportation
- Cast a wider net to ensure all sources of fresh food are captured
- Investigate if certain types of stores are associated with the presence of food deserts (“Dollar” Stores)

Thanks for coming!

Questions?