Exploring Food Deserts

University : The George Washington university.

Team Members: Abishek Chiffon, Robert Williams, Keerthana Aravindhan, Mowzli

Project Description:

We have observed that our friends and family members in the USA are encountering challenges when it comes to accessing groceries. Some reside in remote rural areas, while others live in close proximity to urban centers, yet they all face this issue. Consequently, we have chosen to investigate the phenomenon of Food Deserts, which often go unnoticed, existing both within city centers and in rural regions. According to the USDA, residing in a food desert is defined as "living more than one mile from a supermarket in urban or suburban areas and more than 10 miles from a supermarket in rural areas." Notably, we have observed a recent increase in the prevalence of food deserts, and we hypothesize that the COVID-19 pandemic may be a contributing factor. Our ultimate goal is to combat hunger in the United States.

SMART questions for Food deserted in US dataset :

Specific:

1. What is the geographic distribution of food deserts in the dataset by state and county?
   - How many unique states and counties are represented in the dataset?
   - What is the total number of census tracts included?

2. How does urban vs. rural classification (Urban) affect the prevalence of food deserts?
   - What percentage of census tracts are classified as urban vs. rural?
   - Are food deserts more common in urban or rural areas?

3. What are the characteristics of areas with a high percentage of group quarters (GroupQuartersFlag)?
   - How many census tracts have a high percentage of group quarters?
   - Is there a correlation between the percentage of group quarters and the prevalence of food deserts?

4. What is the relationship between poverty rates (PovertyRate) and the presence of food deserts in different regions (State/County)?
   - Are there states/counties with higher poverty rates that also have a higher prevalence of food deserts?
   - Is there a correlation between poverty rates and food desert status?

Measurable:

5. Can we measure the impact of vehicle availability (LILATracts_Vehicle) on food desert designation?
   - What percentage of food deserts have limited access to vehicles?
   - Is there a significant difference in the prevalence of food deserts in areas with and without vehicle access issues?

6. How do income-related variables (MedianFamilyIncome, LowIncomeTracts) relate to food deserts?
   - What is the median family income in food desert areas compared to non-food desert areas?
   - What percentage of food deserts are classified as low-income tracts?

7. Can we quantify the extent of low access areas (e.g., LILATracts_1And10, LILATracts_1And20) in the dataset?
   - What percentage of census tracts fall into different categories of low access areas?
   - Are there patterns in the prevalence of food deserts in these categories?

Achievable:

8. Can we identify actionable insights for policymakers and community organizations to address food deserts?
   - Are there specific areas with a high prevalence of food deserts that require targeted interventions?
   - What factors are strongly associated with the presence of food deserts and can be addressed to alleviate the issue?

Relevant:

9. How do food deserts impact different demographic groups (e.g., racial and ethnic populations, age groups)?
   - Are there disparities in food desert prevalence among different racial or ethnic groups?
   - How does the presence of food deserts affect children (TractKids) and seniors (TractSeniors) in the population?

Time-bound:

10. Have there been changes in the prevalence of food deserts over time, and if so, what are the trends?
    - Can we analyze changes in food desert prevalence between 2010 and the present (if applicable)?
    - Have there been notable shifts in food desert status over recent years?

Data Source:

This data is pulled from the Food Access Research Atlas, and contains information on supermarket access at various distances. This data measures access by the Census-Tract, and as such provides a fairly granular overview. Additionally, it combines Food Access data with other fields such as age, race, rural or urban, and income. **It has 4000 observations.**
Link :Food Access Research Atlas

Team Link: https://github.com/Keerthana0620/DATS6101-Intro-to-DataScience-Project1