FOOD INSECURITY AND ACCESS TO FOOD PANTRIES IN SOUTHEAST TEXAS

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Introduction

Food insecurity is a complex phenomenon that affects millions of Americans every year. Around 35 million people in the United States were living in food-insecure households in 2019 (Coleman-Jensen et al., 2020), and this number has increased dramatically during the pandemic. Food banks and food pantries are important sources of food for many of these food-insecure households. Extensive research has now addressed the spatial variation in food insecurity and access to food retailers, but far less attention has been given to the access to food pantries, yet access to these services is an important strategy in managing food insecurity (Bacon & Baker, 2017; Waity, 2016). The study defines access to food aid programs based on service area calculation through road network distance. The study aims to calculate block group level food insecurity using poverty rates and a food insecurity index.

Objectives

The study explores how access to food aid resources (i.e., food pantries) varies across Southeast Texas, and identifying areas where food-insecure communities have limited access to these resources.

Study Area

The study includes 8 counties (i.e., Jefferson, Orange, Hardin, Jasper, Newton, Tyler, Polk, Sabine) in Southeast Texas that are under the service area of Southeast Texas Food Bank.

References


Data

Location data of food pantries was collected from Southeast Texas Food Bank. Under the service area of Southeast Texas Food Bank, 62 food pantries were reported.

Demographic and socioeconomic data were collected from the US Census ACS 5-year estimates for years 2014-2018 at the block group level. Data include: total population, land area, poverty rate, unemployment rate, and renters occupied housing unit. Road network data was collected from OpenStreetMap.

Methods

Step 1: Identify % of each block group area that is covered by circular and network buffer from food pantries, 1-mile buffer for urban and 10-mile buffer for rural block groups

Step 2: Identify block groups that have high poverty and low access to food pantries. Low access block groups are those that have 67% or more of the area outside of buffer.

Step 3: Identify block groups that have high food insecurity index and low access to food pantries

\[ FII = (50\% \text{ Poverty}) + (40\% \text{ Unemployment}) + (10\% \text{ Renter Occupied Housing}) \]

Step 4: Perform overlay analysis to identify block groups of low access that have both high poverty and high food insecurity index score.

Results

Figure 1 shows high poverty block groups with different level of access to food pantries, Figure 2 shows high food insecurity index block groups with different level of access to food pantries, and Figure 3 shows the overlay analysis that compares between the block groups that fall in high poverty and low access areas and the block groups that fall in high food insecurity index and low access areas. For all three figures, the smaller maps in the upper left corner show the analysis with the circular buffer and the bigger map shows the analysis with the network buffer. Figure 4, 5, and 6 are the inset maps of Figure 1, 2 and 3 respectively to show the particular area in a larger scale.

Discussion and Conclusion

- Our analysis suggests that there are a significant number of food insecure and impoverished people living in Southeast Texas.
- Understanding their access to food assistance programs is critical to support their well-being and health.
- Measuring the physical access or geographic proximity to the food assistance programs can provide valuable insights on how these services are distributed throughout the region as well as if the people in the highest need have these food aid services available in their close proximity.
- Network buffer analysis around food pantries is a more realistic representation to understand how to improve the access to food pantries for people in need compared to circular buffer analysis. A substantial increase in low access block groups can be seen when we use network buffer instead of circular buffer.
- Our future work will incorporate different modes of transport to reach to the food pantries. Also, our work will incorporate the temporal dimension which has to deal with the frequencies and the hours of operation of food pantries to better reflect access to food assistance programs in space and time.

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