

Term Project Report

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Title: Monitoring of government benefit (Supplimental Nutrition Assistance Program) distribution in Hillsborough County, Florida.

Abstract

In a report on the Long-term benefits of the Supplemental Nutrition Assistance Program (SNAP) of December 2015 from the Executive office of the President of the United States, made it known that nearly one in every seven households of an American experience food insecurity in 2014. 15 million children are included in these households which lacks necessary resources and access to food. The report also revealed that in 2014, 40 percent of all food-insecure households and almost 6 percent of the United States households overall are considered to have very low food security. Which means, in almost seven million households, at least one person missed meals due to lack of resources for food.

Efforts for the United States to alleviate hunger through supplementing food budget for the low-income households is what Supplemental Nutrition Assistance Program (SNAP) is all about. SNAP benefits help a lot of vulnerable populations in the United State including children, disable individuals, and the elderly, it also increases number of working families. There are a lot of benefit of the SNAP for the less privilege, the low-income earners, the disable and the vulnerable. The program assists families to have food, though the food quantity may not be able to sustain the families throughout the month. There is a great positive impact made by SNAP on children before an after birth which lasts beyond childhood years. Mothers that are beneficiaries of this benefits during pregnancy reduces the incidence of low birth-weight between 5 and 23 percent. Also, adult that grew up in disadvantaged households benefits from food stamp according to the report.

The effort and amount of money government puts in the SNAP made me to think deeper about this SNAP. Hence, the interest in this research. The research reveals percentage population of different

race and where they cluster, percentage population of race that lived below poverty level in the past 12 months of 2019 in Hillsborough County of Florida. Also, the research explores the number and spatial distribution of SNAP stores by type and to assess how SNAP benefit redemption is linked to store in Hillsborough County of Florida.

Keywords:

SNAP: - Supplemental Nutrition Assistance Program.

Beneficiary: - one that benefits from something.

Demographic data: - refers to data that is statistically socio-economic in nature such as population, income, race, education and employment, which represent specific geographic locations and are often associated with time.

Introduction:

Living above poverty level is something everyone want, most at times people try their best not to go below poverty level by working hard to earn more income, sometimes situation beyond control such as health challenges, lost of job, large family size, lack of education etcetera caused them to live below poverty level. The United State of America spends a lot of funds to support different families that are living below poverty level.

According to CBS Miami, on August 16, 2021, the Biden administration announces on Monday, the largest permanent increase in food stamps benefits, in the program's history. The report says that "starting in October, average benefits for the food stamps, officially known as the SNAP program, will rise more than 25% above pre-pandemic level. Florida Agriculture commissioner Nikki Fried after applauded the SNAP benefit increases for Florida families in the program said "Helping Florida families access the food they need to grow and thrive is one of his top priority".

Low-income urban neighborhoods often have fewer grocery stores and farmers' market where healthier food is more likely to be available. Poor access to healthy, affordable, and culturally sensitive food can contribute to social disparities leading to increased occurrence of diet-related health issues. (Elizabeth Bastian & Jacob Napieralski 2016).

To successfully carry out a project of this kind, there is no other tools as power as GIS tools. A Geographic Information System (GIS) is that special type of computer-based information system

tailored to store, process, and manipulate geospatial data (Michael Worboys and Matt Duckham). The data for this study is geographically referenced, and the tool of GIS enhanced to explore the number and spatial distribution of SNAP stores by type and to assess how SNAP benefit redemption is linked to store in Hillsborough County of Florida.

Material and Method

Data Source

A lot of analysis was carried out, and the analysis required demographics for commercial, residential, roads etcetera, the unit of analysis was census block group. The data type for the project were (vector, point, line, polygon). Data was sourced is TIGER/Line shapefiles, which was used for polygon boundaries, the demographic characteristics of the geographic units, 2019 Census data for the block group from US Census Bureau website was used. Roads, parcels water data came from Hillsborough County Property Appraiser. Data of the store locations were obtained from Google Earth.

Store Location

Three major stores were used for the analysis, these stores were Walmart Superstore, Target, and Publix Supermarket. These three stores accept food stamp, and the location of the stores are within the Cities and Towns in Hillsborough County where the study was carried out. The location coordinates were extracted from google earth map, and a separate database table was created for the stores locations.

Geoprocessing:

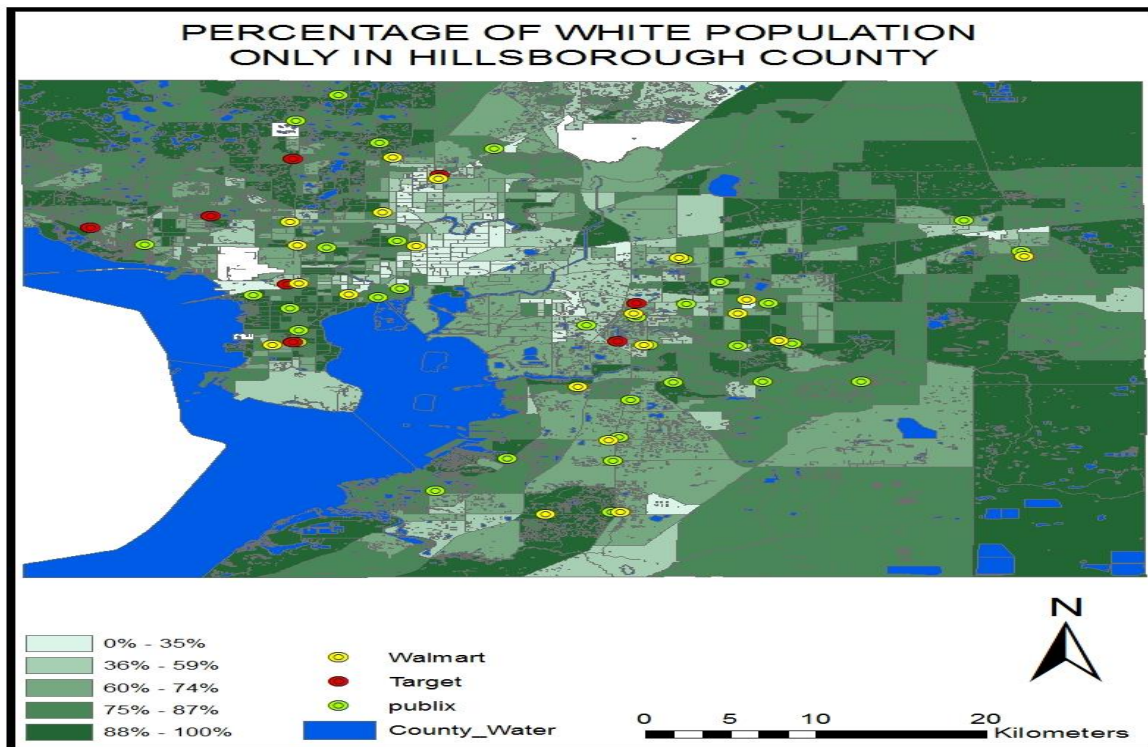
Spatial tables were joined, the database tables joined were three. Table with 12 months below poverty level, table containing race and that of the shapefile. The shape file from TIGER/Line shapefile contained map of the entire Florida, that of Hillsborough County Property Appraiser contained Hillsborough County boundary and water, clipping was carried out. Other shapefiles, and table were used in ArcMap. Spatial queries were carried out to know each location where the beneficiaries are located, where the stores are, etcetera. Using analysis tools, other spatial operations to extract, overlay, carry out spatial statistics and other GIS operations were carried out.

Performing all these tasks, Arcpy module make it simpler and easier, Arcpy module was used for some of the SQL queries, buffer, clipping etcetera instead of repeating certain operation or analysis. With Python script, it was possible to import arcpy

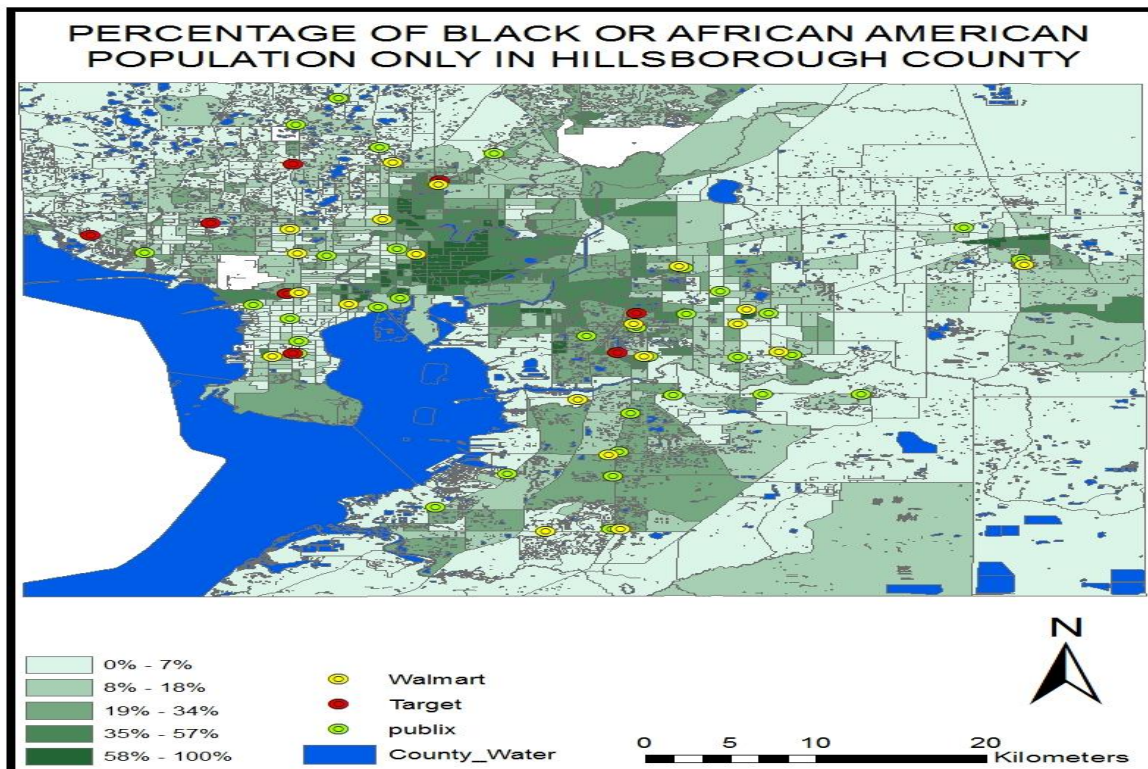
To determine proximity, network analysis was carried out within 1-mile radius from the location of the grocery store. To really achieve the purpose of the study, overlay of different maps were required, also production of different thematic maps. A lot of analysis including intersection, union, summary statistics, splitting, etcetera were done. All these would have been cumbersome handling it without Python script. In the Python script, while and for loops with nested and conditional statements (if, elif and else) were used for the coding.

Result

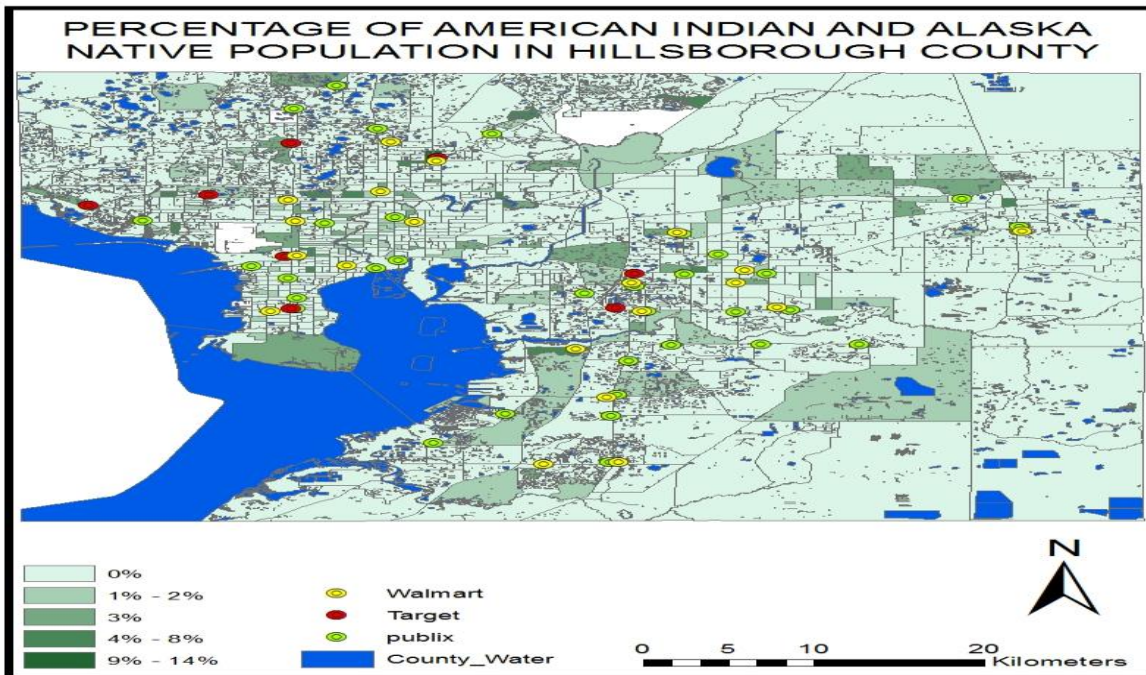
The main purpose of this study is to determine the race that benefits more with SNAP, the result is as shown in Table 2. The percentage of population of different race are as seen in Map 1 to Map 6. The percentage of people living below poverty level is as shown in Map 7. The analysis of grocery stores that accept food stamp is as shown in Table 1. The store with the largest and smallest walkshed is in Table 3.



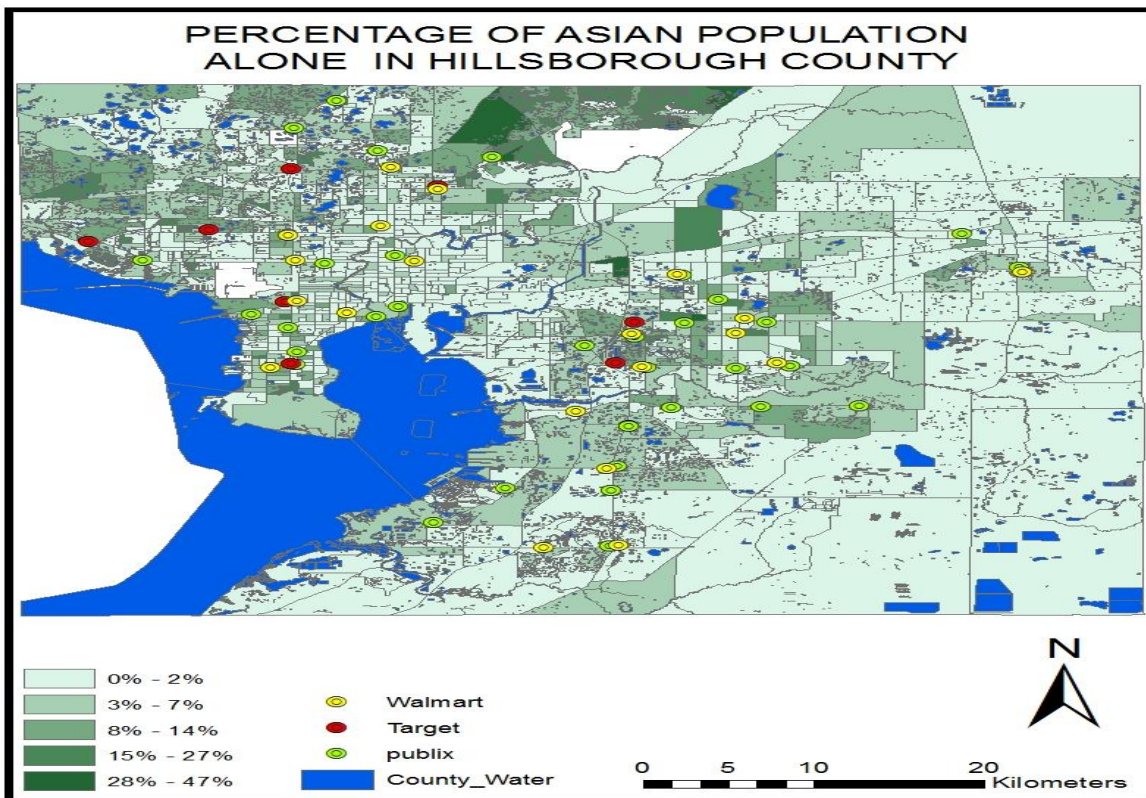
Map 1.



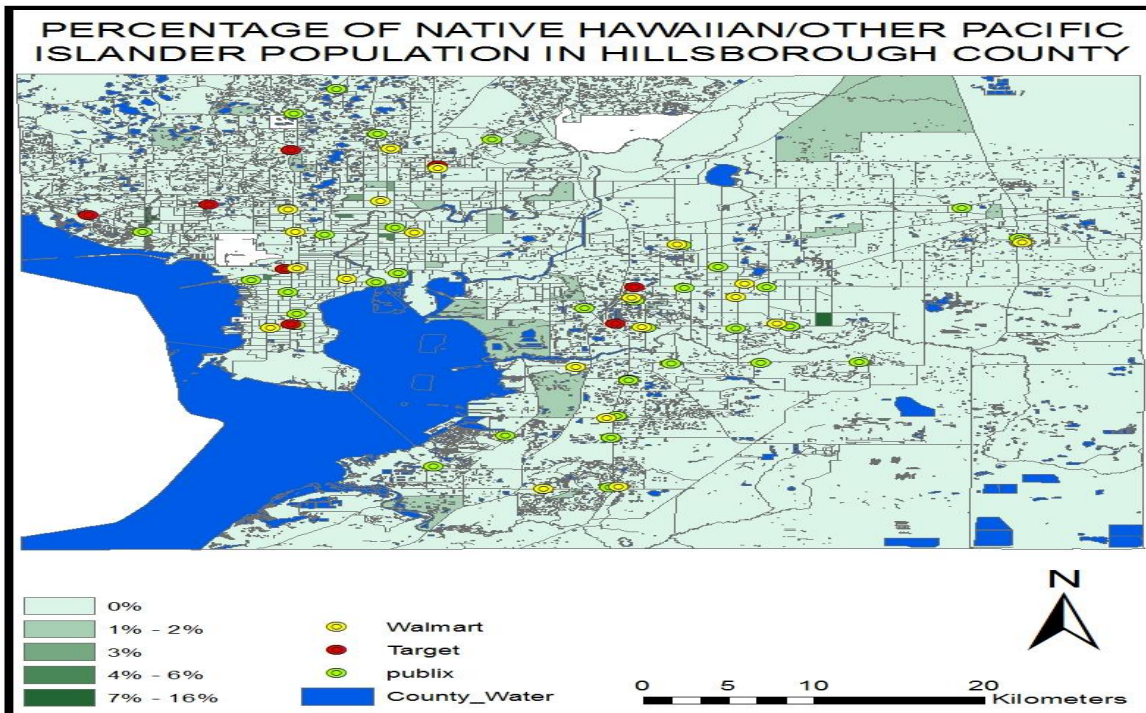
Map 2.



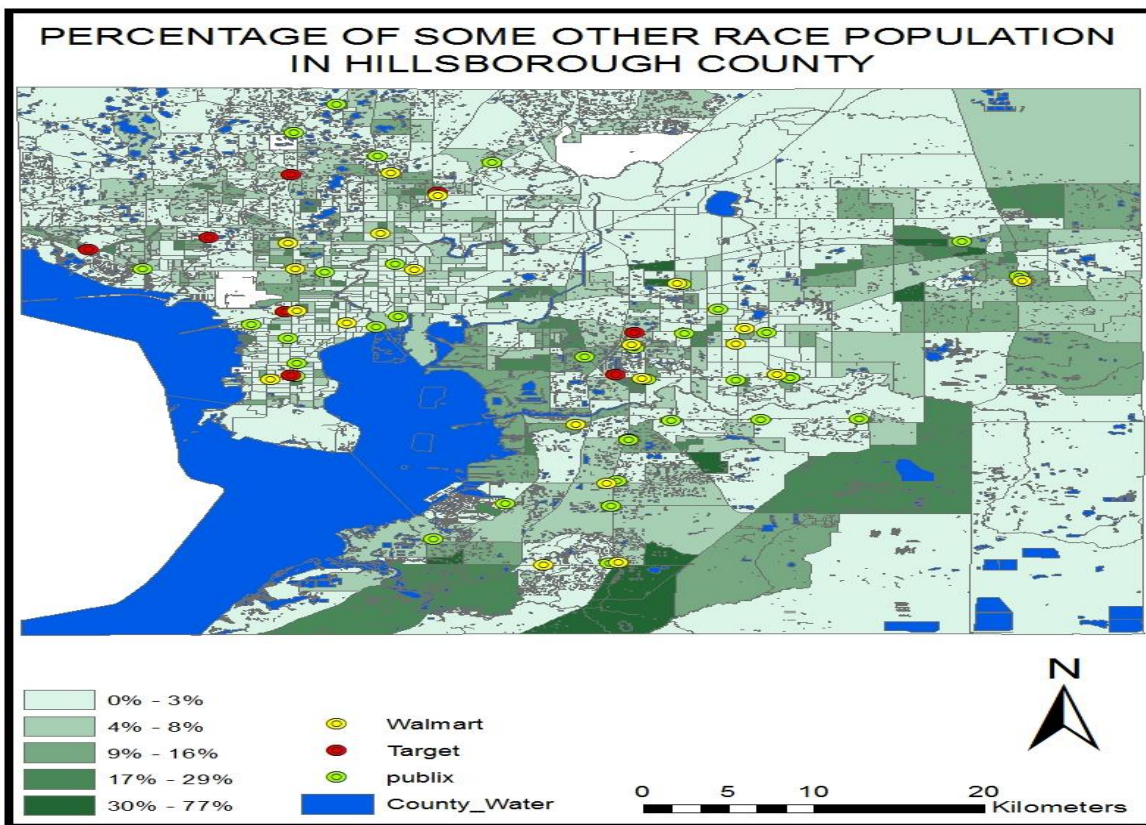
Map 3.



Map 4.

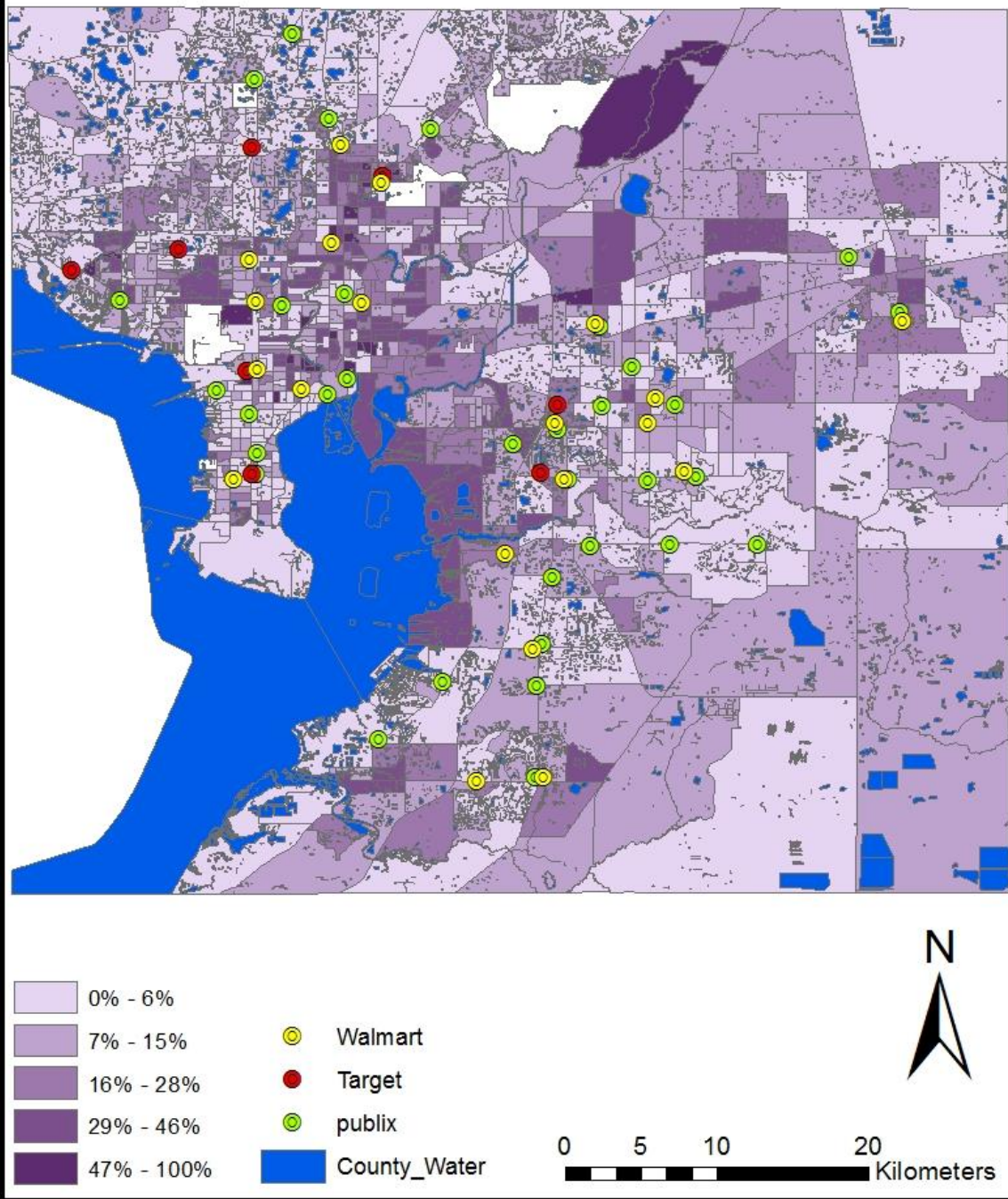


Map 5.



Map 6.

PERCENTAGE OF INCOME IN THE PAST 12 MONTHS BELOW POVERTY LEVEL IN HILLSBOROUGH COUNTY



Map 7.

Table 1. Grocery Stores accepting Food Stamp in Hillsborough County

PUBLIX	TARGET	WALMART
38	8	21

Table 2. 2019 Income in the past 12 months below poverty level

SERIAL No.	RACE	Population (%)	Below Poverty Level (%)
1.	White	51.83	71.23
2.	Black or African American	18.30	19.02
3.	American Indian and Alaska Native	0.10	0.30
4.	Asian	1.71	4.25
5.	Native Hawaiian and other Pacific Islander	0.10	0.06
6.	Some other race	27.96	5.14
	Total	100.00	100.00

Table 3. Walkshed of 1 mile radius

Walkshed	Location	Store	Zip Code	Area (sq.Mi)
Smallest	Lithia	Publix	33547	0.374
Largest	Tampa	Publix	33629	2.022

Discussion and Conclusion

From the analysis carried out and the result obtained, it shows that most of the area that are occupied with the low-income earners (people living below poverty level) are where there are more stores that accepts food stamp (Publix Supermarket, Target and Walmart Superstore). The question is; is it because of the low-income earners that could be responsible for this? Most of this area are highly populated area and the people with high income does not fine these areas conducive to live anymore. The wealthy might have migrated away from these places for the low-income earners to area that are more suitable for them.

Some Cities and Towns does not have all the three grocery stores, but all the City and Town has at least one of the grocery stores. Moreover, in some areas, the stores are more within 1-mile radius,

although not the same store. Publix Supermarket own the location with the largest walkshed in Tampa and the one with the smallest walkshed is Lithia.

The result shows also that the race that benefits more in the SNAP program is the white, though by population of the white and other race, the white has the highest population which is 51.83%. They also have more population of the people living below poverty level which is 71.23%.

Many people of particular race tend to cluster together, where there are more Blacks the White are less, and where you have more White the Blacks are few. This is the same with people from another race.

Though the white benefit more because of their population, the study shows that the SNAP program benefits is evenly distributed within Hillsborough County.

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