Introduction

The purpose of this project is to determine if areas with the highest rates of household SNAP participation are also areas that have SNAP/EBT (electronic benefits transfer) card-accepting retailers within walking distance of public transportation. Massachusetts does not have the highest rate of SNAP participation, only 11% of residents in 2017 compared to New Mexico’s 22% (Nhachao and Cai 2018), but I chose it as a study region due to the availability of public transportation across the state. The Massachusetts Bay Transportation Authority (MBTA) services the greater Boston area and the Regional Transit Authority (RTA) has service in regions across Central and Western MA as well as Martha’s Vineyard, Nantucket, and Cape Cod. Since SNAP transactions bring over $1.2 billion to the state’s poorest residents and grocers (Baker and Negus 2018) it would benefit the state to increase constituent’s access to SNAP/EBT retailers to increase the amount of federal money given to the state.

Methods

ArcMap program version 10.6.1 was used. To create Figure 1 I first performed an attribute join with the “CENSUS2010TRACTS_POLY” shapefile and the “ACS_17_5YR_S2201” table using the 11 digit geo-ID codes found in columns GEOID10 and geo.id2 respectively. To create Figure 2, the USDA table “snapretailers.csv” was geocoded to display as point data. Next, the geocoded points were spatially joined to the CENSUS2010TRACTS_POLY layer to create a count of SNAP retailers in each tract. To create Figure 3, I generated a 0.25 mile dissolved buffer around each of the bus stops in the MassDOT layers. One quarter mile was designated a reasonable walking distance from transit stop to destination. Multiple selections by location were performed to select for the retailers that intersected a buffer. The selected points were then spatially joined to the original CENSUS2010TRACTS_POLY layer to create a count of stores within walking distance of a public transit stop in each census tract.

Results

Figure 1 ranked the census tracts by percent of households receiving SNAP. While Boston, Worcester and Springfield are areas with the most concentrated tracts with higher participation rates, participation in the program spans across the whole state. Figure 2 shows that a majority of the state has 2+ SNAP/EBT accepting stores per tract, yet there are a significant number of tracts with 0-1 participating stores. Figure 3 shows that there are very few widespread areas with high numbers of SNAP/EBT retailers within walking distance of a bus or subway stop. Figures 4-6 show the same information as Figures 1-3 but at the smaller extent of the Boston area. Figure 4 demonstrates that there is a high concentration of SNAP participating households in the Boston area. Figures 5-6 demonstrate that there is minimal observable difference between the total number of SNAP/EBT retailers and accessible SNAP/EBT retailers in the Boston area.

Conclusion

There does not appear to be a direct correlation between tracts with the highest percentiles of household SNAP participation and tracts with the highest number of SNAP/EBT retailers. Lack of strong correlation was surprising, but a possible explanation is that the 2017 areas of high participation in SNAP have shifted from where they were in previous years, and retailers in areas with growing SNAP participant populations have not been responsive to the change so as to accept EBT. From Figure 2 to 3 there is a drastic decrease in the number of SNAP/EBT retailers when walking distance from a public transit stop is considered. This is cause for concern for those SNAP recipients who rely on public transit but reside far from blue shaded areas shown in Fig. 3. As predicted, due to the MBTA’s extensive coverage over Boston, examining Figures 5 and 6 showed insignificant change between total number of SNAP retailers in a tract and the number of retailers accessible by public transit. Despite the relative accessibility of participating stores across the Boston area, this trend is not mimicked across the rest of the state. Areas shaded blue in Fig. 3 do not necessarily signify the presence of a sufficient amount of participating stores. My overall takeaway from this analysis is that it appears that there is a state-wide need for an increased number of SNAP/EBT retailers and that there is a lack of transit-accessible SNAP/EBT retailers in some parts of the state which demonstrate need for them.

References


Cartographer: Serena Monteiro

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Data Sources: US Census, MassGIS, MassDOT, and American Community Survey

Projection: Lambert Conformal Conic

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Next Stop, SNAP

SNAP/EBT Retailers Within Walking Distance of Bus and Subway Stops in Massachusetts