GIS & SPATIAL ANALYSIS - SOC SCI, 2023

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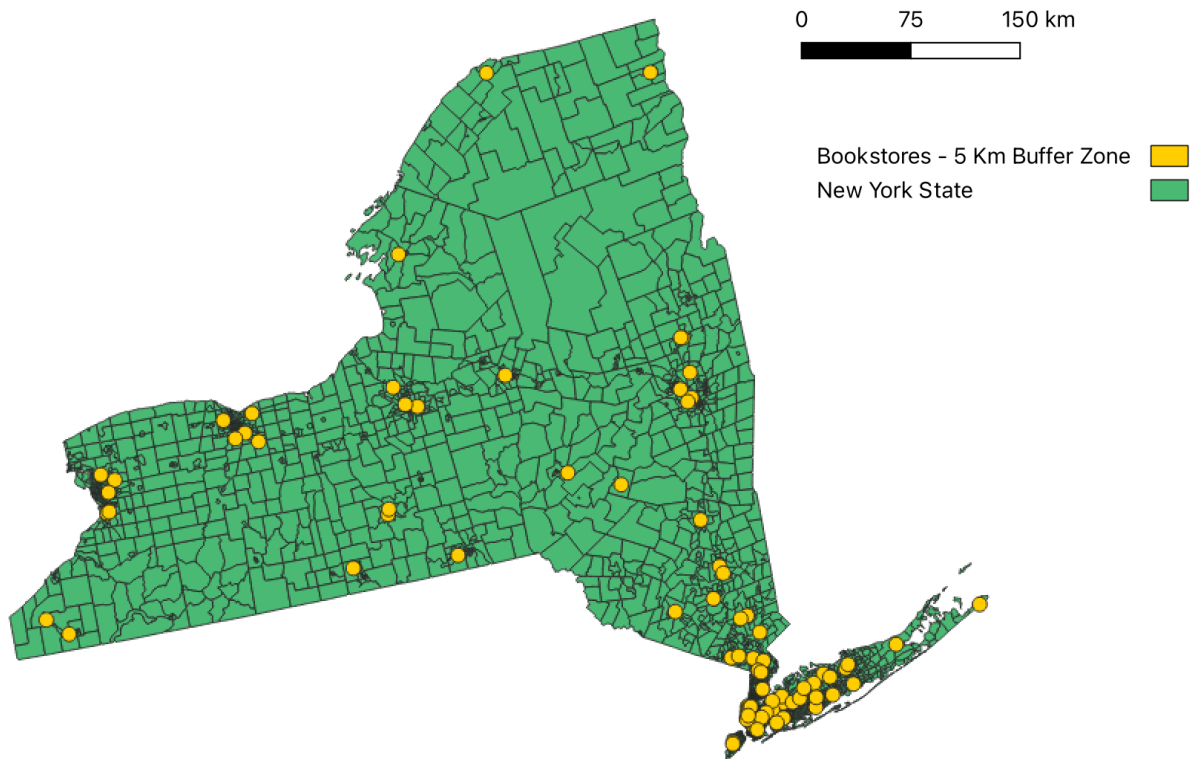
Homework 2: Points, Polygons, Spatial Joins, and Buffers

Figure 1 Bookstores in NY (With a 5 Kilometer Buffer Zone)

Looking at the map of New York above shows a stark difference in bookstore distribution between New York City and the rest of the state. The concentration of bookstores within the city is notable, with their 5-kilometer buffer zones frequently overlapping, indicating easy accessibility for city residents and visitors. However, as one moves beyond the city limits and into the vastness of New York State, the coverage becomes more limited. The state's more rural and less-populated regions appear to have fewer bookstores, resulting in larger areas with no bookstore within a 5-kilometer radius. This disparity highlights the urban-rural divide.

Has_Bookstore	Average of POP2009	Average of eSHAVGINC	Average of eReading	Average of RENTER_OCC
0	3,999.31	53,019.05	105.04	570.94
1	3,973.16	62,686.82	112.21	749.28
Average	3,983.57	58,838.70	109.35	678.29

Figure 2 Pivot Table Census Data

From the provided data, it is evident that the presence of a bookstore in a tract correlates with certain socio-economic and demographic characteristics. Tracts without a bookstore (0) have a slightly higher average population (2009) of 3,999.31 compared to those with a bookstore (1) at 3,973.16. Intriguingly, tracts with bookstores exhibit a notably higher average income, with $62,686.82 compared to the $53,019.05 of tracts without. This suggests that bookstores may be more prevalent in economically affluent areas. Further, the average reading score (eReading) is higher in tracts with bookstores (112.21) than in those without (105.04), implying a potential link between the presence of bookstores and literacy or education levels. Lastly, tracts with bookstores have a higher average of renter-occupied units at 749.28, compared to 570.94 in tracts without, indicating that areas with a transient or younger population might have a higher propensity to house bookstores.
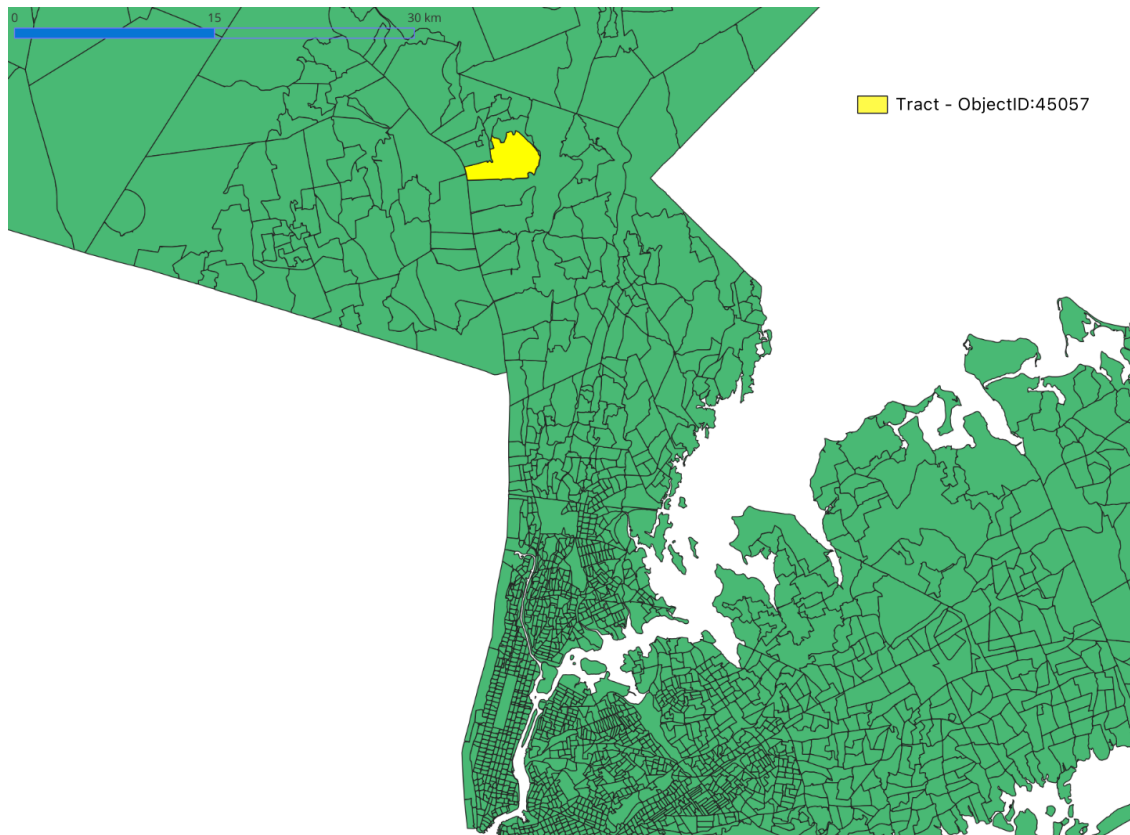
Figure 3 Tract with ObjectID: 45057 Highlighted

When compared to the provided averages, Tract with the ObjectID "45057" offers a compelling proposition for the establishment of a bookstore. With a population of 4,436, it slightly surpasses the grand average of 3,983.57, suggesting a denser potential customer base. It's eReading score, a robust 180.4, is significantly above the average of 109.35, highlighting a community with a pronounced literary inclination. Most notably, the tract's average income stands at an impressive $245,724, dwarfing the grand average of $58,838.70 and indicating substantial economic affluence. It can be predicted that such prosperity will positively correlate with heightened discretionary spending, favorable for businesses like bookstores.

However, its renter-occupied units, at a count of 50, deviate markedly from the average of 678.29, suggesting a more stable and potentially less transient demographic. Based on the pivot

table areas with higher renter-occupied units have more bookstores on average. In contrast, the notably lower renter-occupied units in tract "45057" hint at a more established, possibly older demographic. It can be assumed that the higher average income and lower renter-occupied units in this tract may indicate a more affluent community that values stability and long-term investments. This can still be advantageous for a bookstore as areas with more stable, affluent demographics often have residents with disposable income and an inclination towards cultural and educational expenditures, creating a favorable environment for opening a bookstore.