Ruoyang Gu

10/14/2021

GEOG498G

Project Proposal

Study Area and Methods

In the recent waves of infrastructure renovation proposals, urban highway/interstate segregation has been put under the spotlight by policy makers, marking them the one of the roots of racial segregation and wealth inequality. Many also point out that the relocation process in the 60s had destroyed many once thriving communities. Thus, Mr. Biden submitted a 20 billion solution to “reconnect neighborhoods”. In addition, many argue that urban highways greatly reduce human mobility to car dependence, which makes cities much less optimal for walkers and bikers.

In this project, I will mainly use property values to examine two neighborhoods separated by urban highway, and to see how the overall disparity looks like. I will also try to compare them with neighborhoods separated by typical roads, and to see if there's a strong enough standard deviation difference between these two models. This analysis can be done over multiple cities to compare the degree of highway segregation in between. Ultimately, a rough evaluation on the spatial impacts of highway segregation can be drawn from this project.  Other data such as crime rates and racial distribution can be used as supplements. Alternatively, if necessary, a small scale human mobility analysis after the proposed changes can be developed.

Data Sources

There are some challenges on data collection, as the typical census tract often overlaps with both sides of highway communities. Therefore, the main data sources will be from market value analysis/area sales analysis and other real property data search sites. I’m still looking for a way to scrape or use an API to collect data from government sites like<https://sdat.dat.maryland.gov/RealProperty>, as real property prices there are being evaluated under the same standard.

Challenge

One challenge I envision is how to maintain sample integrity without bias. Urban highways could have very deep reach within the city, and communities around them have other spatial interactions. Regionalization from one side to another side of highway may sounds easy, but if we account other functioning regions, such as CBD, and other spatial features like river, the question become complicated. Therefore, how to aggregate data for the best of their quality and uniformity is challenging. In addition, as I mentioned in data sources section, diverging from traditional boundaries yields some difficulties on data structure.

Python Tools

I’m expecting to use numpy, geopandas, matplotlib, osmnx, and geosnap. But I’m certain I may potentially add more libraries in the future as the class progresses.