Initial project proposal

**Project draft name:**

A Spatial Analyze of Transportation Behavior Changes in MD Before the Pandemic and During the Pandemic.

**Study area–where and why**

The study area for this project is Maryland, and the spatial resolution for this project are census tracts. Since this project is focusing on both the spatial difference of transportation spending among different places and the temporal changes of one place before the pandemic and during the pandemic, a county-level dataset is not detailed enough to distinguish spatial difference within the state of Maryland; therefore, the resolution is census tract. The temporal coverage of this study is from 2017-2020, which has four years of coverage.

**Potential Source of data:**

For this project, the data source will be SimplyAnalytics (Formerly SimplyMap), according to their website. It is a web-based mapping, analytics, and data visualization application that makes it easy for anyone to create interactive maps, charts, and reports using 100,000+ data variables. Their data includes demographic, historic census, business, health, real estate, housing, employment, consumer spending, and marketing. Users can create customized maps and reports; data is down to the census tract level. As for the spatial resolution, most of their data is available at the State, County, City, ZIP Code, Census Tract and Block Group level, custom trade area, and the entire United States.

As the data size, since the study works on census tract level, and the data types available from SimplyAnalytics to download are shapefiles or CSV depending on the data variables, only 2020’s data can be downloaded shapefile. Therefore, for variables available for shapefile, they will be downloaded as shapefile as well as CSV. The rest of the variables from 2019-2017 will be downloaded as CSV and later merged as a spatial panel dataset.

Currently, the data variables are selected from the following datasets in SimplyAnalytics: SimplyAnalytics- Community Demographics; SimplyAnalytics- Expenditure Estimates; USA Facts – COVID-19 Outbreak; EASI -MRI consumer Survey; U.S. Census Bureau: American Community Survey. The ESAI’s consumer survey and SimplyAnalytics’ Expenditure Estimates are selected because they contain transportation spending variables. Since there are no direct numerical variables about transportation behavior in this SimplyAnalytics, this project will use the spending on gasoline money, public transportation, etc., to analyze the behavior changes.

One limitation of this dataset is the temporal coverage. Data about spending behavior during the pandemic only have one entry, which is 2020. While the data about before the pandemic is from 2017-2019.

**Question or task**

The primary question of this project is to find out the transportation behavior changes of Maryland in the Census tract, in both spatial and temporal changes. The temporal changes will be mainly focused on the difference between before the pandemic and during the pandemic. A potential alternative could be simply looking at the spending behavior changes during the pandemic among different census tracts, such as grocery, clothing, healthcare, etc.

**Envisioned challenges**

The challenges of this project will be 1. Using spending on gas and transportation to reflect the transportation changes in temporal scale might be affected by the inflation rates during the pandemic, especially the price of gas will heavily influence people who choose to drive to work.

**Exploratory data analysis**

地图

描述已自动生成