Resource Allocation Strategies in King County, WA

GEOG 461: Lab 2

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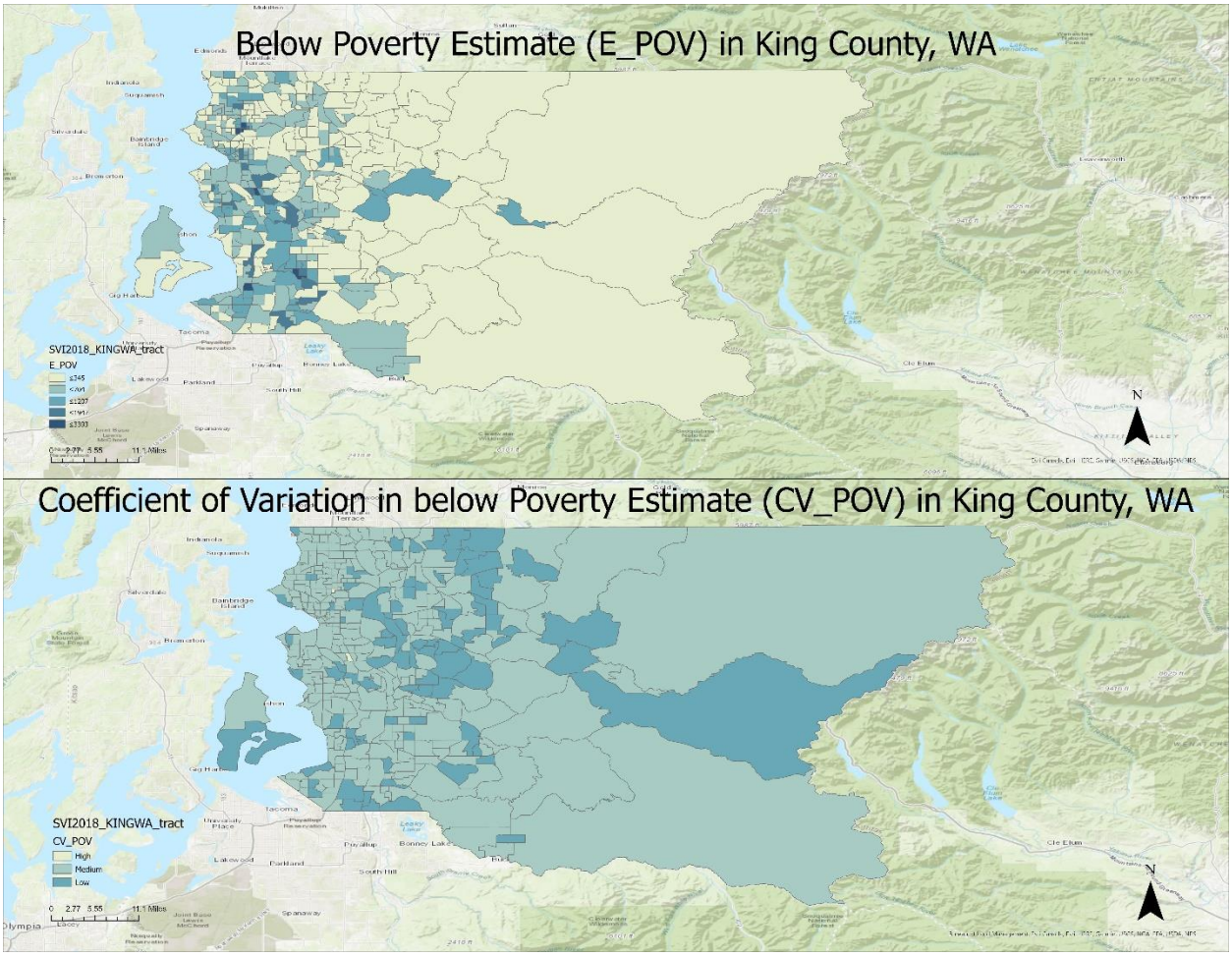
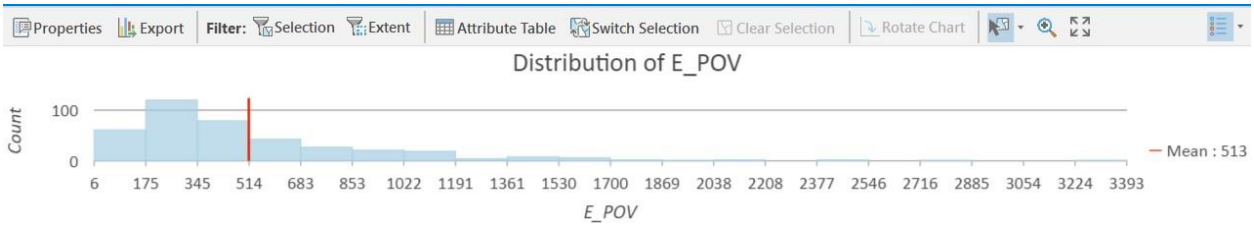
I began this investigation by downloading the CDC's SVI data on Washington state from the year 2018. This dataset is a census tract, and the format of the data is a shapefile. I started by mapping the poverty estimates, as you can see below. I also calculated the CV scores to analyze and demonstrate uncertainty levels. Then I examined my data in more geographic detail, with a specific focus on below poverty. I also want to discuss how vulnerability can be broken down into several categories, as seen in the SV index of variables. These categories are composed of variables such as socioeconomic status, household composition and disability, minority status and language, and housing type and transportation.

It is important to map out the spatial distribution of below poverty to properly study any patterns that may be present. These patterns are significant because if certain regions have a larger volume of people who are in poverty, it is worth studying these areas further and drawing conclusions between the region and any other variable that may playing a role. Something important to consider is the uncertainty in this data. While the data source is extremely reliable because it is provided by the CDC, there is still a level of uncertainty as this is true for all datasets. In the Estimate of the Proportion of Population below Poverty Map it is evident that there are 10 census tracts with 0.3 or greater. I tackled the estimation aspect by mapping out the margin of error (MOE) of the Below Poverty SVI variable. In addition, we discussed in lecture how the best way to compare places for certainty is through the Coefficient of Variation (CV). This is useful because it gives us the relative amount of sampling error that is associated with a sample estimate. I generated Margins of Error for the estimate of the proportion of population below poverty and studied where the confidence interval is narrower and where it is wider.

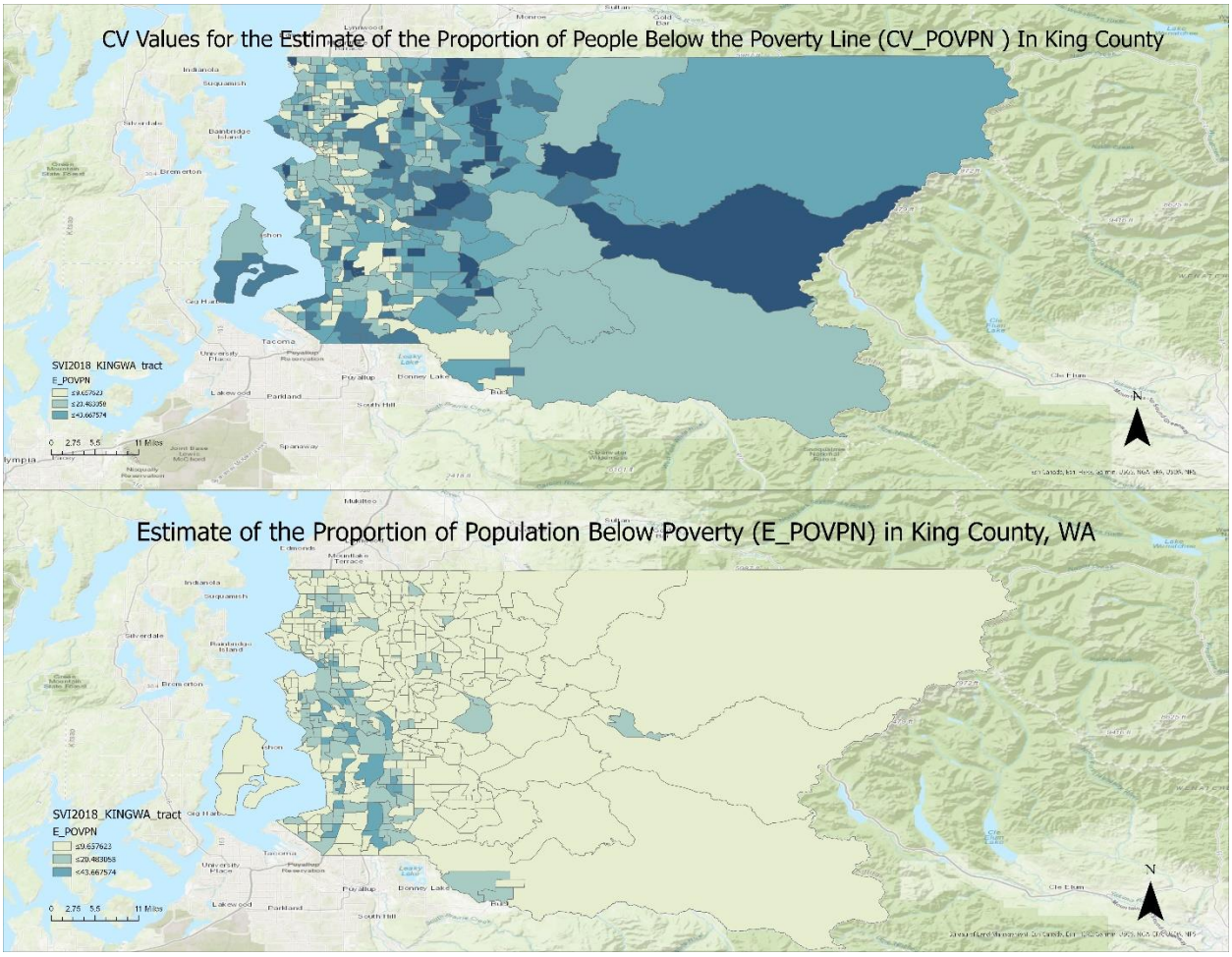
Maps of E_POV and CV_POV



For most of the state, there is a CV value that belongs to the Medium category. There are also a few smaller areas that have a CV value that belongs to the Low category. While the Below Poverty variable mapped out in this manner is incredibly informative, we need to remember to view it within the context and keep in mind the CV value. It appears that the mean in this dataset is 513 and many values, exceeding 100, are between 175 and 345. The highest population of people who are below poverty level seem to be located on the western side of the state. The eastern side of the state seems to have a smaller population of individuals who are below the poverty line. The region right by the western border but a little closer to the right appears to have the most areas that correspond with a high degree of below poverty individuals.



Maps of E_POVPN and CV_POVPN



For most of the state, there is a CV value that belongs to the Medium category. There are also a few smaller areas that have a CV value that belongs to the Low category and some that belong to the High category. Again, as I mentioned previously, the Below Poverty variable being mapped out like this is very informative. However, we still need to keep in mind what the corresponding CV value is for that region. In this dataset the mean is 9.44078, and compared to the last statistical distribution, the values in this one are a little more spread out. A majority of the values are spread out between 0.138 and 15.374, but mainly between 4.491 and 8.844. The majority of the state is low in terms of having a population that is below the poverty level. There are medium and higher concentrations of populations that are below the poverty line towards the western border of the state, in addition to only a few of these regions spread out across the state.