Examining Poverty in King County

Logan Selley

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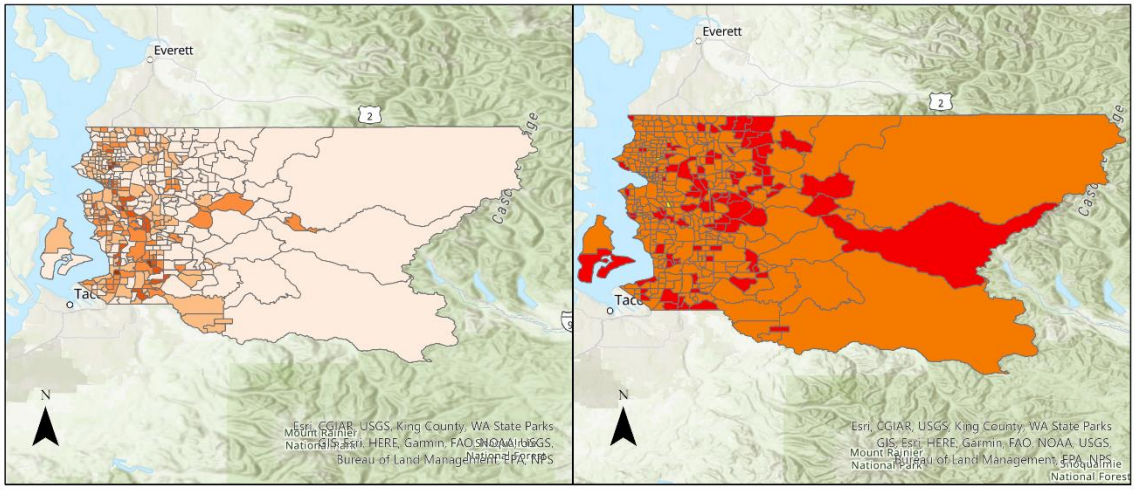
This report aims to analyze and understand these poverty statistics sourced from the Center for Disease Control Agency for Toxic Substances and Disease Registry for Washington's King County in the year 2018. Analysis will be aimed towards examining both the patterns present in the data as well as the validity and reliability of the data itself in order to get some idea of what census tracts have the most need for aid.

In addition to the relevant data, it is important to also map and examine both the source of the data as well as the data's potential uncertainty. This is because it is important to know how the data was collected (and by who), not only in order to check for potential biases or flaws in the methodology (like who is and is not counted), but to determine the reliability of the data. When data is sampled to create estimates, it is accompanied with an associated margin of error and a confidence level to show a likely potential range of values for a statistic. This already shows that statistics cannot be taken at their word alone and require more context to properly analyze, but because margins of error are scale dependent, calculating a coefficient of variation is preferable in order to determine if data is reliable and if differences in statistics and statistical patterns are significant. As such coefficients of variations have been mapped alongside the relevant data for comparison.

King County Population Below Poverty 2018



King County Population Below Poverty
Estimate

- 6 - 345
- 346 - 704
- 705 - 1207
- 1208 - 1947
- 1948 - 3393

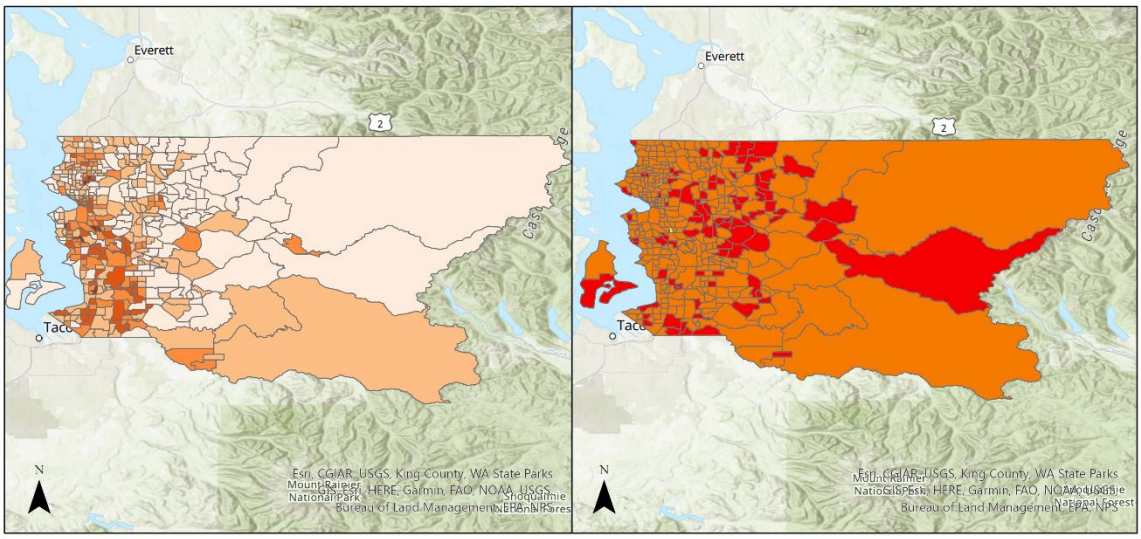
King County Population Below Poverty
Coefficient of Variation

- 0-12
- 12.01-40
- 40.01-100

Data sourced from the CDC Agency for Toxic Substances and Disease Registry for the year 2018

This first variable is the estimate (and corresponding CV) of population below poverty by census tract within King County. A cursory glance tells us pretty plainly that there are more people in poverty on the western side of the state, but this should be expected to a degree because this statistic isn't normalized for population. What is more meaningful is how some of these groups are clustered. The 3 tracts with the highest numbers are all adjacent in the north Seattle University District, but the areas around that have much lower numbers. The rest of the top 10 highest tracts are more sparsely distributed through south Seattle, Renton and Kent, but also see much less of an immediate drop off in the surrounding areas like we see in north Seattle. These patterns can potentially be valuable, but looking at the CV for this data, the overwhelming majority of tracts fall into the medium or high variation groups, suggesting that overall this isn't a particularly precise estimate. However, census tract 53, and its neighboring tracts that make up the top 3 in terms of poverty population, also have some of the lowest CV scores, suggesting that area should be a legitimate point of interest for poverty relief.

King County Percent Population Below Poverty 2018



Percentage Population Below Poverty

Estimate

- 0.14 - 5.41%
- 5.41 - 9.85%
- 9.85 - 17.05%
- 17.05 - 27.19%
- 27.19 - 43.67%

Percentage Population Below Poverty

Coefficient of Variation

- 0 - 12
- 12.01 - 40
- 40.01 - 100

Data sourced from the CDC Agency for Toxic Substances and Disease Registry for the year 2018

Now this statistic has a lot of similarities to the first map, but also effectively normalizes for census tract population by measuring people in poverty as a percentage of the total population of that tract. We do see a lot of similarities, especially on a larger scale where the overall patterns for both the percentage population and its corresponding coefficient of variation maintain a lot of the same patterns that we saw in the first map. However, there are notable differences, especially on the percentage side. While we do see that cluster in the University district remain within the top 10, it has grown from 3 tracts to 4, and the areas around it have also shifted into higher classifications. Similarly, the rest of the top 10 tracts have shifted a bit and grown increasingly concentrated in south Seattle, with only one remaining outlier south in Kent. Even outside of the areas in highest need, the southernmost portion of the state as well as areas in the center have also risen in classification compared to the first map. As for the coefficient to this data, the values shifted somewhat, but the overall classification stayed very much the same, producing a near identical map to the first one. But this continues the findings that many of the tracts with high rates of poverty also record some of the lowest variation coefficients including the university district cluster. So, while it is much less conclusive to examine the data for the tracts in the middle and low ends of this statistic, it

is clear that these areas of high poverty determined by this data is fairly precise estimate and deserves attention.