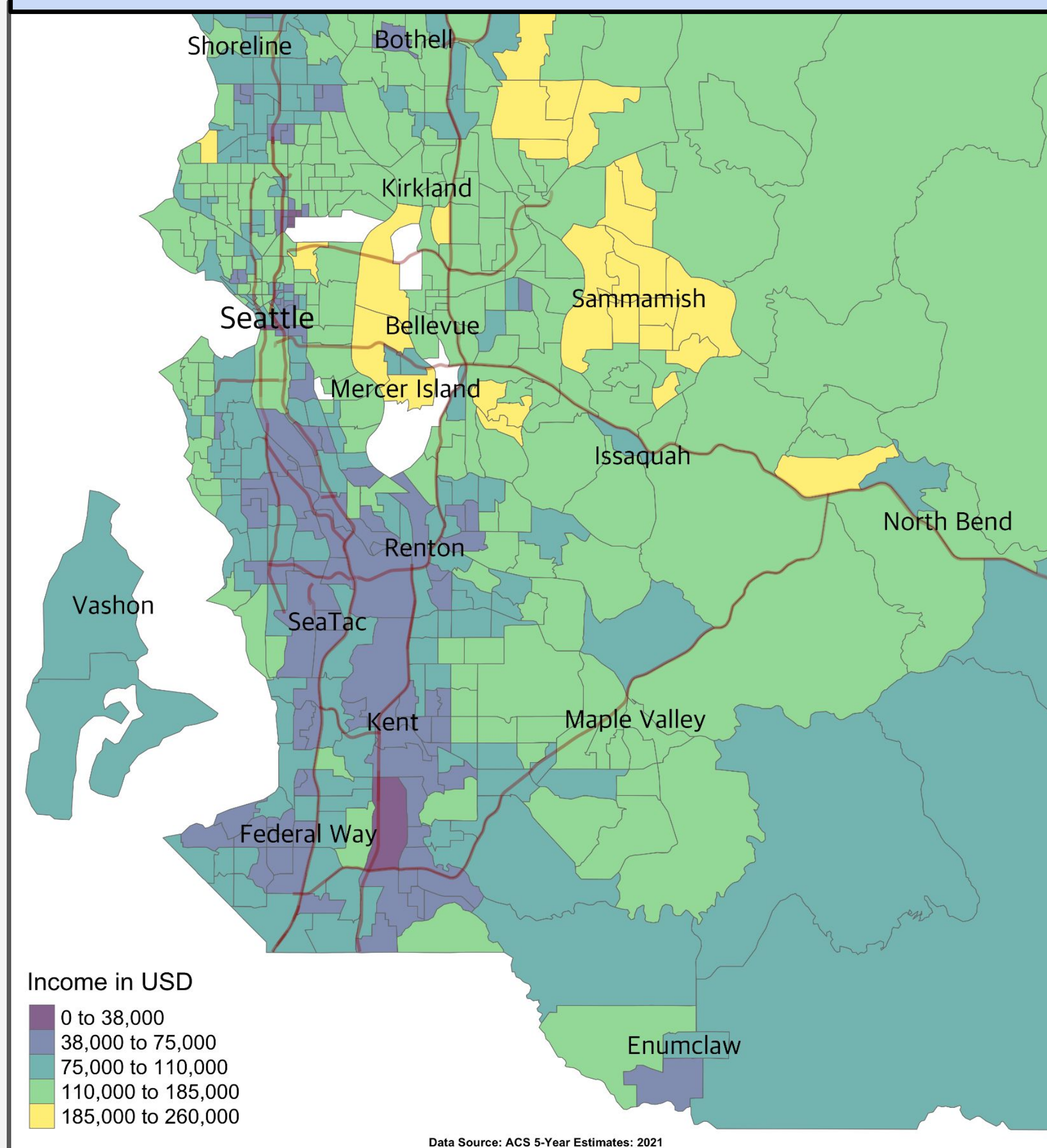# Dimensions of Inequality in King County, Washington

Arne Grette '25   GEOG 55: Critical Analysis in GIS

How is inequality visible or invisible through different lenses? No one statistic or map can capture every aspect of what makes an area equal or unequal in economic terms. Rather, by comparing various metrics side-by-side, a more nuanced narrative emerges. While still very incomplete relative to the multidimensional burdens that lower-income communities face, this series of maps seeks to provide multiple perspectives on inequality to balance out some of the inadequacies of each individual measure. On each map, the darkest colors indicate the most economically-burdened or unequal tracts.
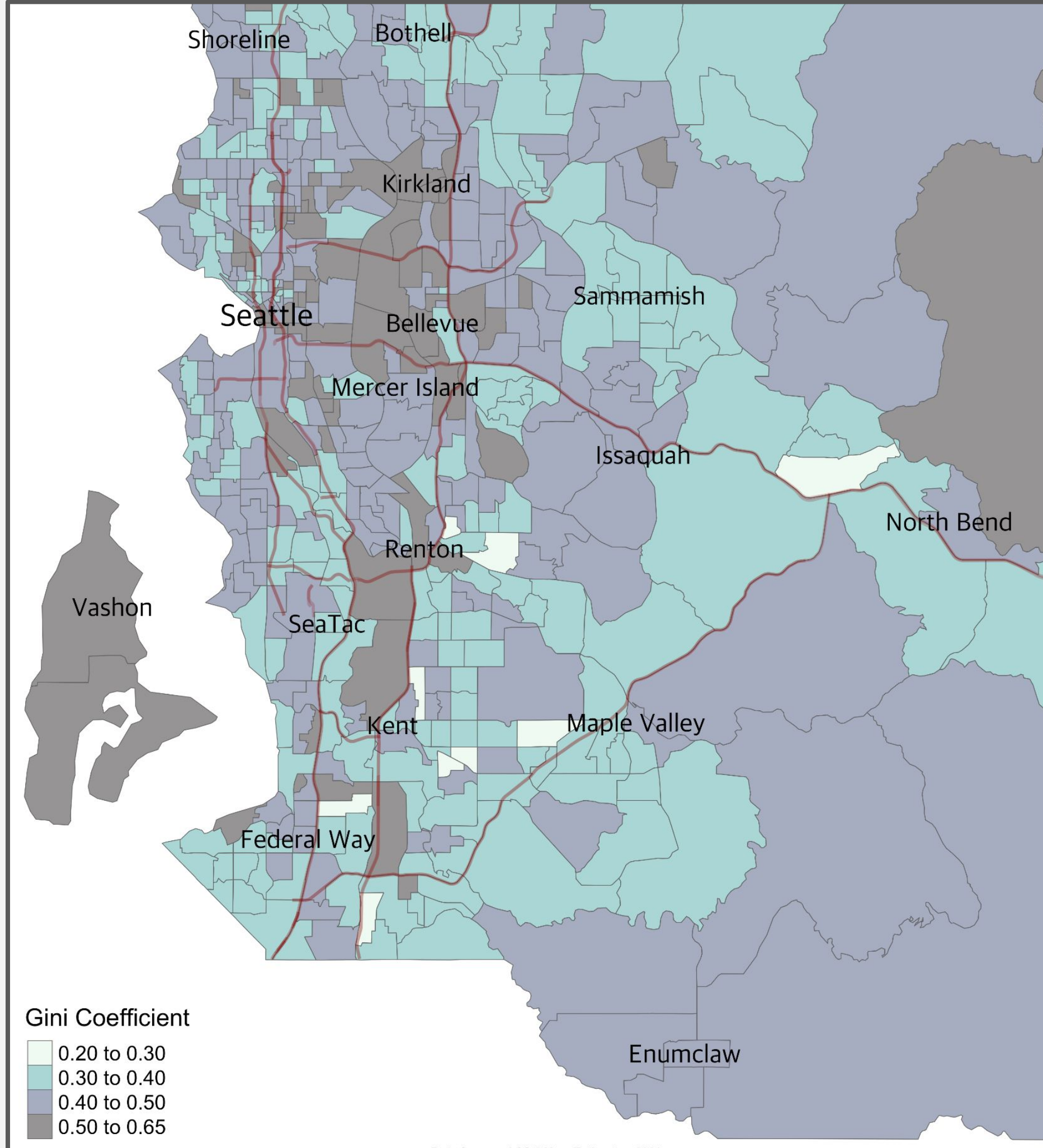
Median Household Income

Income in USD
- 0 to 38,000
- 38,000 to 75,000
- 75,000 to 110,000
- 110,000 to 185,000
- 185,000 to 260,000

Data Source: ACS 5-Year Estimates: 2021

Compared to the 2021 national median household income of $69,021, King County is very wealthy. Few tracts have a median that falls below the $38,000 SPM poverty threshold for a family of four, which includes some degree of cost-of-living adjustment.

However, the median statistic does not show within-tract inequality, nor the proportion of households that are below the poverty line. But, this map clearly shows the concentration of lower-income tracts along the highway corridors in Southwestern King County.

Gini Coefficient of Inequality

Gini Coefficient
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
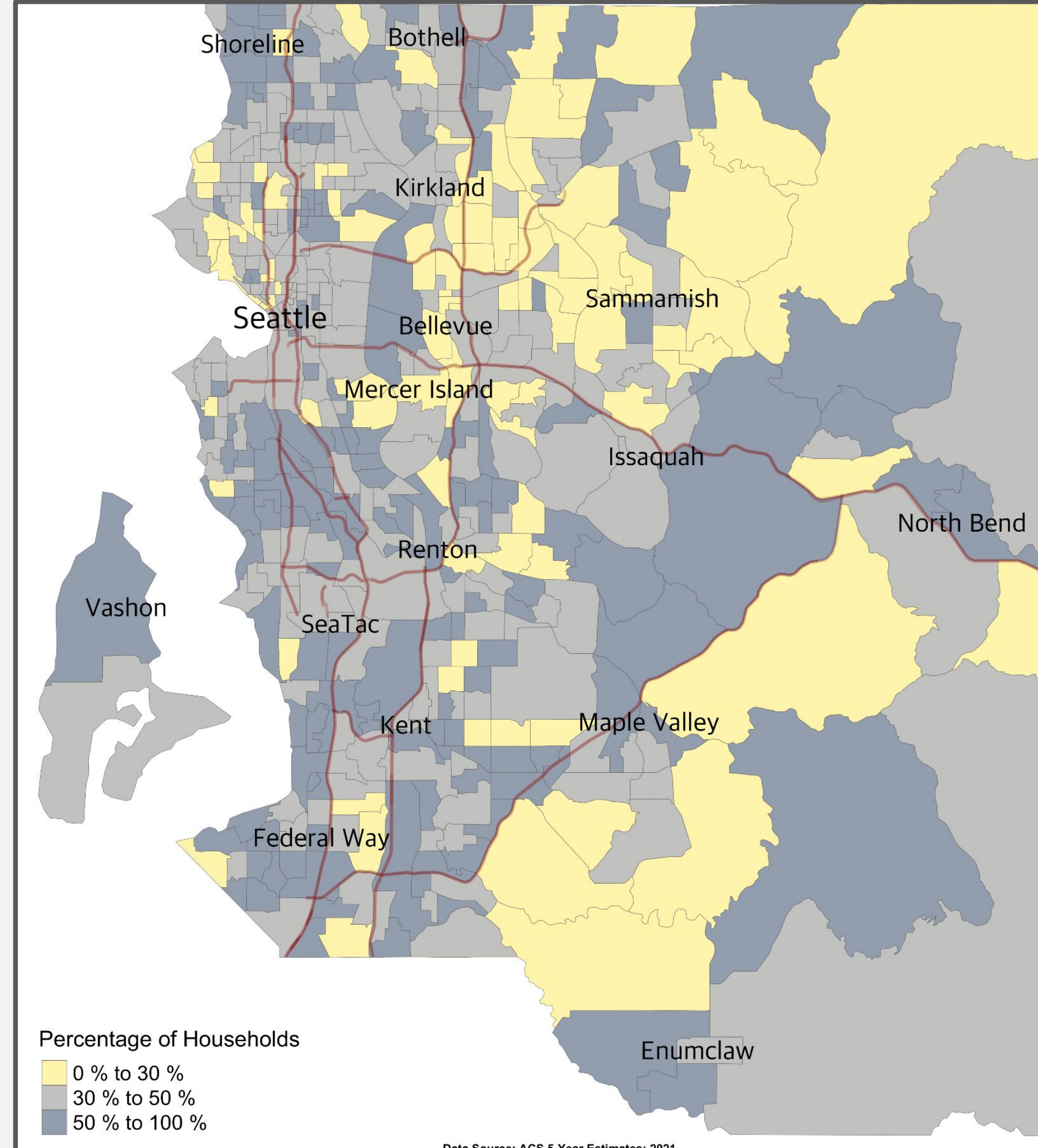- 0.50 to 0.65

Data Source: ACS 5-Year Estimates: 2021

The Gini Coefficient measures income inequality compared to a theoretical perfect equality of 0. This coefficient does not measure inequality of accumulated wealth.

According to UNICEF, "0.3–0.4 corresponds with a relatively reasonable income gap, 0.4–0.5 corresponds with high income disparity, above 0.5 corresponds with severe income disparity."

Notable here is how some of both the wealthiest and poorest areas from the map to the left are revealed to both have "severe income disparity."
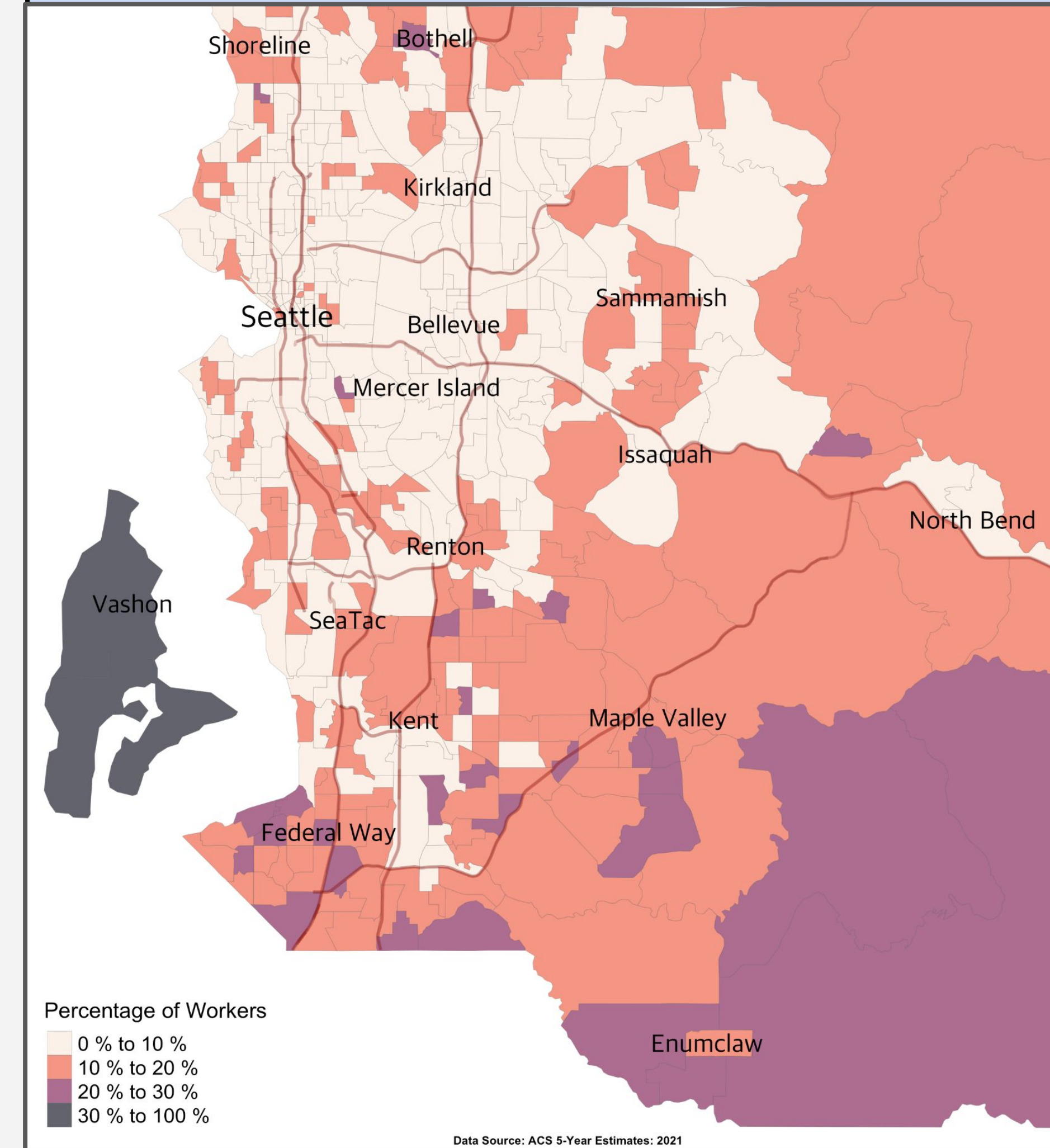
Rent Burden

Percentage of Households
- 0 % to 30 %
- 30 % to 50 %
- 50 % to 100 %

Data Source: ACS 5-Year Estimates: 2021

According to the Department of Housing and Urban Development, rent burden is defined as spending more than 30% of income on housing. This map shows what percentage of households spend in each tract spend at least 30% of income on housing.

Depending on income level, spending above 30% of income on housing might mean less disposable income, or it could mean cutting back on basic needs. While high housing costs are partially reflected in higher wages in the area, as a percentage of income it is still significant.

Commute Burden

Percentage of Workers
- 0 % to 10 %
- 10 % to 20 %
- 20 % to 30 %
- 30 % to 100 %

Data Source: ACS 5-Year Estimates: 2021

Per Howell's (2014) definition of commuting > 1 hour each way, this map shows the percentage of commuting workers who are commute burdened. Commute time is not only unpaid work-related hours, but it also adds to other costs such as gas, vehicle maintenance, and childcare.

This map partially reflects where workers who commute into the city can afford housing. However, the map completely obscures those who commute long distances from neighboring counties into the area.
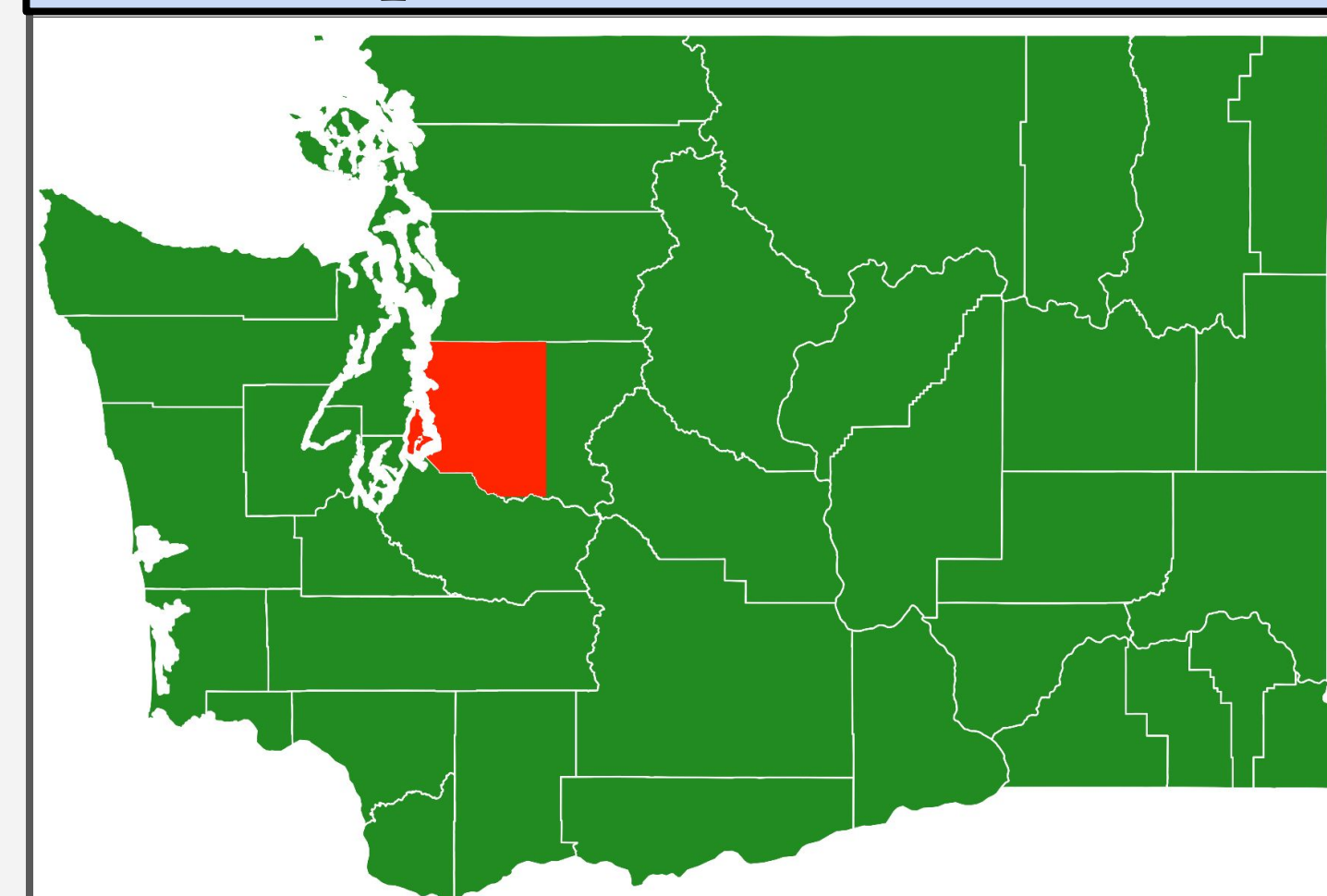
Discussion Notes

As Monmonier (1996) notes, all maps inherently involve distortions. Here are the two most distortive choices I made that I would like to highlight:

Resolution: Mapping at the tract level might reveal contrasts not visible at the county level, but it also obscures detail that would appear at the block-group and block level.

Scale Breaks: Experimenting with different break values produced very different maps. While the ones I chose are intentional in regards to certain economic benchmarks or the overall data distribution, they are also a narrative choice.

Lastly, in regards to Foucault's (1991) critique of governmentality, when citizens start reproduce the state lens of looking at people and society, I would like to acknowledge that the federal census data these maps are based on are reflective of the politics and methodology of its source.

Map Area in Context

Methods

All maps were constructed with data from the American Community Survey (ACS) 5-Year Estimates for 2021 at the census tract level of "1,200 to 8,000 people with an optimum size of 4,000 people" using Kyle Walker's tidycensus R package. Highway and city spatial data was queried from OpenStreetMap and combined with the ACS data through Martijn Tennekes's tmap R package. I chose to focus my map area on the area of King County west of 121.7°W in order to retain the spatial resolution necessary to distinguish the smallest tracts with the highest population density. Given the low population-density of eastern King County, no census tracts were eliminated by narrowing the map area, but only their far western portions are visible in the map.

Data Sources

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