

# Exploratory Data Analysis of Factors Affecting Median Household Income in Seattle

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## Introduction

This analysis uses census data in 2013 conducted by Seattle City government to explore factors which may affect median household income.

## Data description

The analysis focuses on three main variables in the data set: 1) Median household income 2) Percent population of color 3) Percent population with bachelor degree or higher.

## Findings

### Regression model

I build three regression models based on the following combinations:

- 1) Median household income and Percent population of color
- 2) Median household income and Percent population with bachelor degree or higher
- 3) Percent population of color and Percent population with bachelor degree or higher.

### Regression results

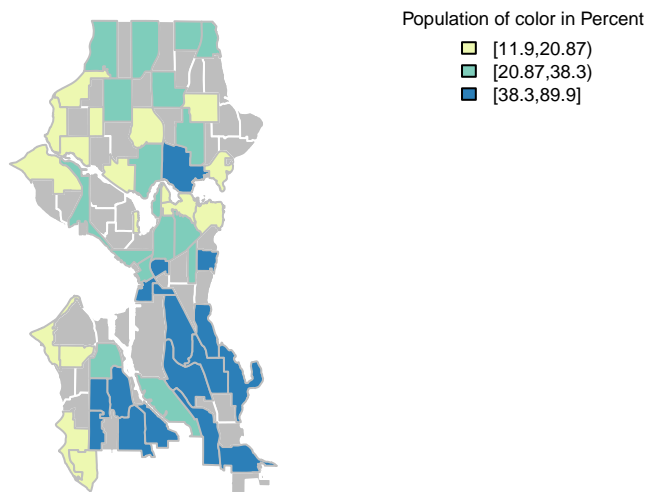
The regressions of three combinations all show statistically significant results:

- 1) Holding all other factors constant, one percent increase in percent of population of color is associated with \$642.2 decrease in median household income.
- 2) One percent increase of population with bachelor degree or higher is associated with \$851.3 increase in median household income.
- 3) One percent increase of population of color is associated with 0.66% decrease in population with bachelor degree or higher.

## Map of the distribution of three variables

Map1

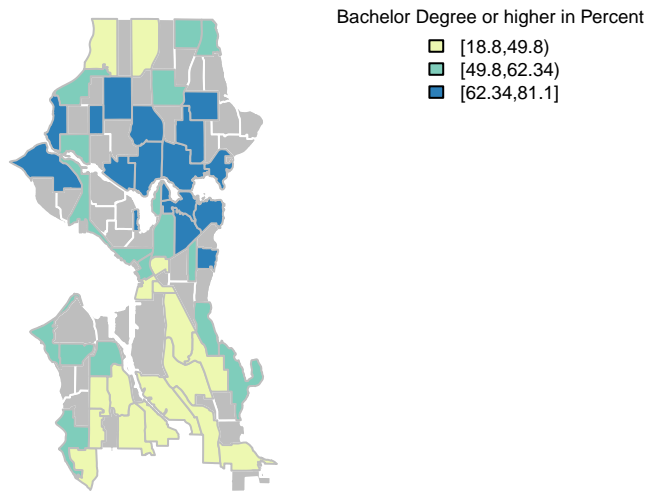
### Population of color in Percent in Seattle 2013



Population of color are mainly distributed in the south part of Seattle.

## Map2

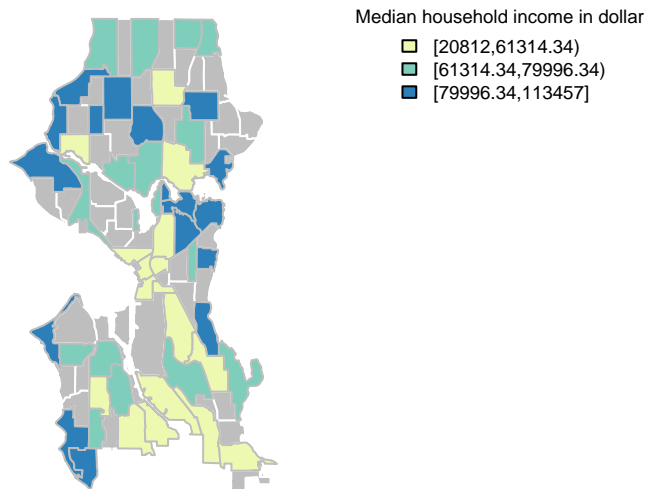
### Population with bachelor degree or higher in Seattle 2013



Communities in the north Seattle have higher ratio of residents holding bachelor degree or higher. Compared with last plot, south Seattle communities have much lower ratios of bachelor degree or higher residents.

## Map3

### Median household income in Seattle 2013



The median household income roughly obey the trend showed in last two plots. Higher median household income communities appear more in north Seattle. South Seattle communities often have lower median household income.

## Recommendations

There are still large gap between population of color and white. Population of color are more likely to hold lower degree and earn less money.

Thus, I recommend city of Seattle put more resources in improving the education equity and salary level for population of color.