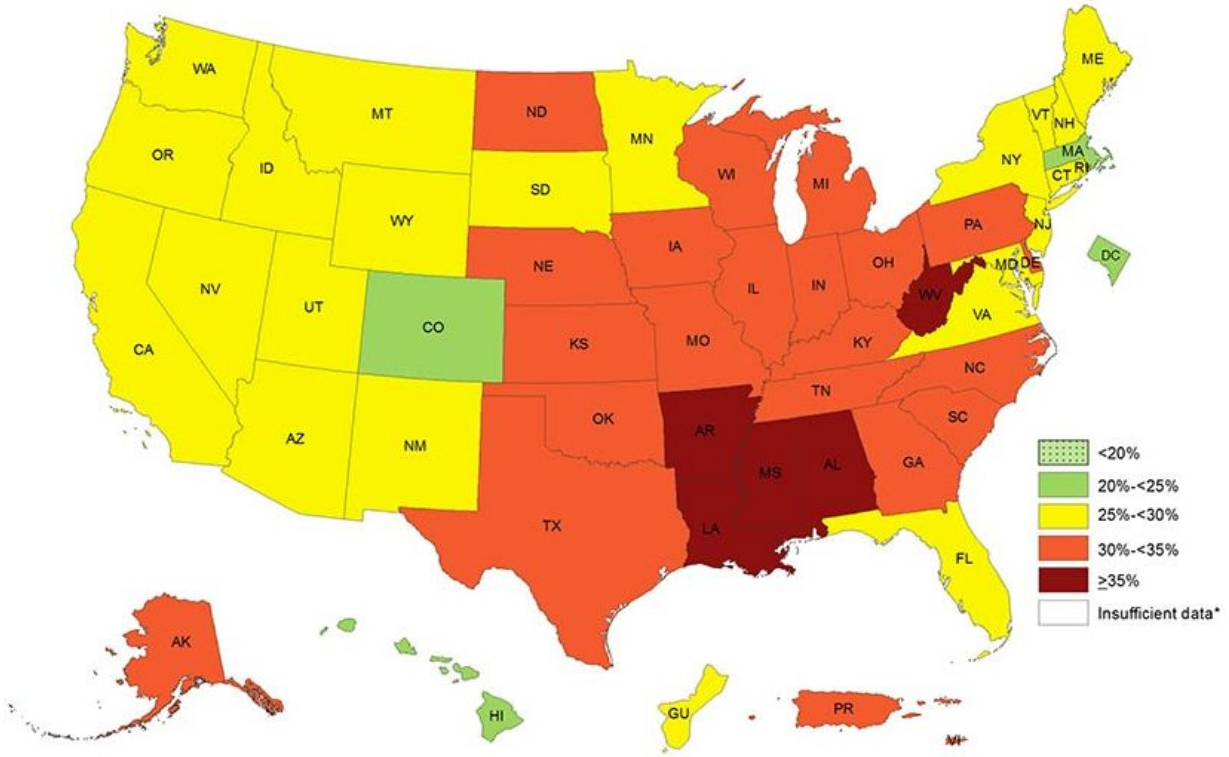
The Geographic Factors Affecting Overweight/Obesity Rates in Denver County, Colorado

Luis Garcia

Background

- One of the lowest Overweight/Obese rates
- Rise in recent years



Research Questions/ Hypothesis

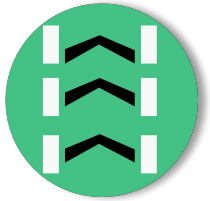
- Demographics within significant variables
- Is there a model that can predict overweight/obesity rates?
- Percentage of people sleeping less than 7 hours will have positive coefficient, and bikeway coverage will have a positive coefficient towards the dependent variable.

Methodology

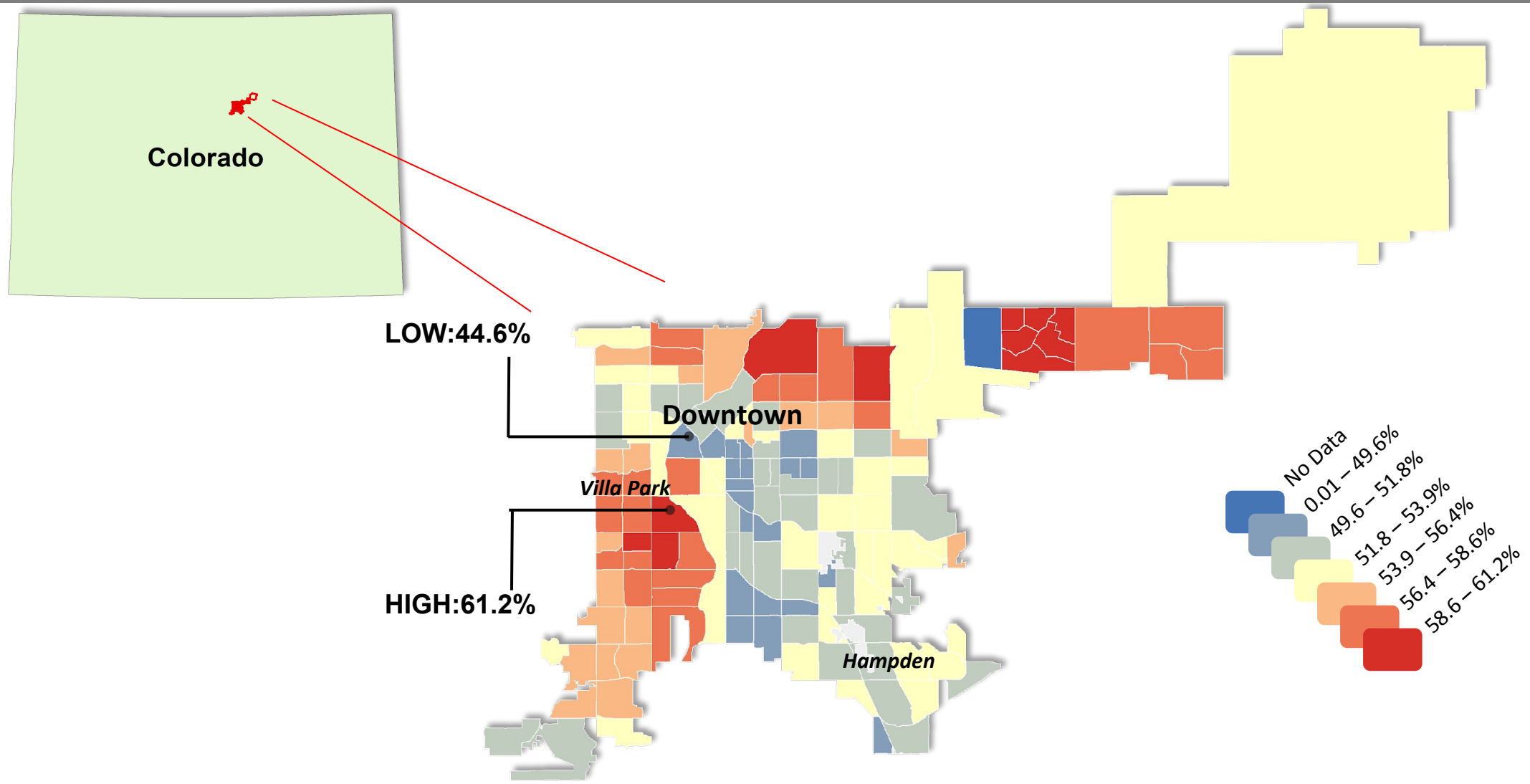
- Standardizing
- BI-Variate Model (Moran's I)
- Capturing Demographics of areas of significance
- OLS Regression

Data

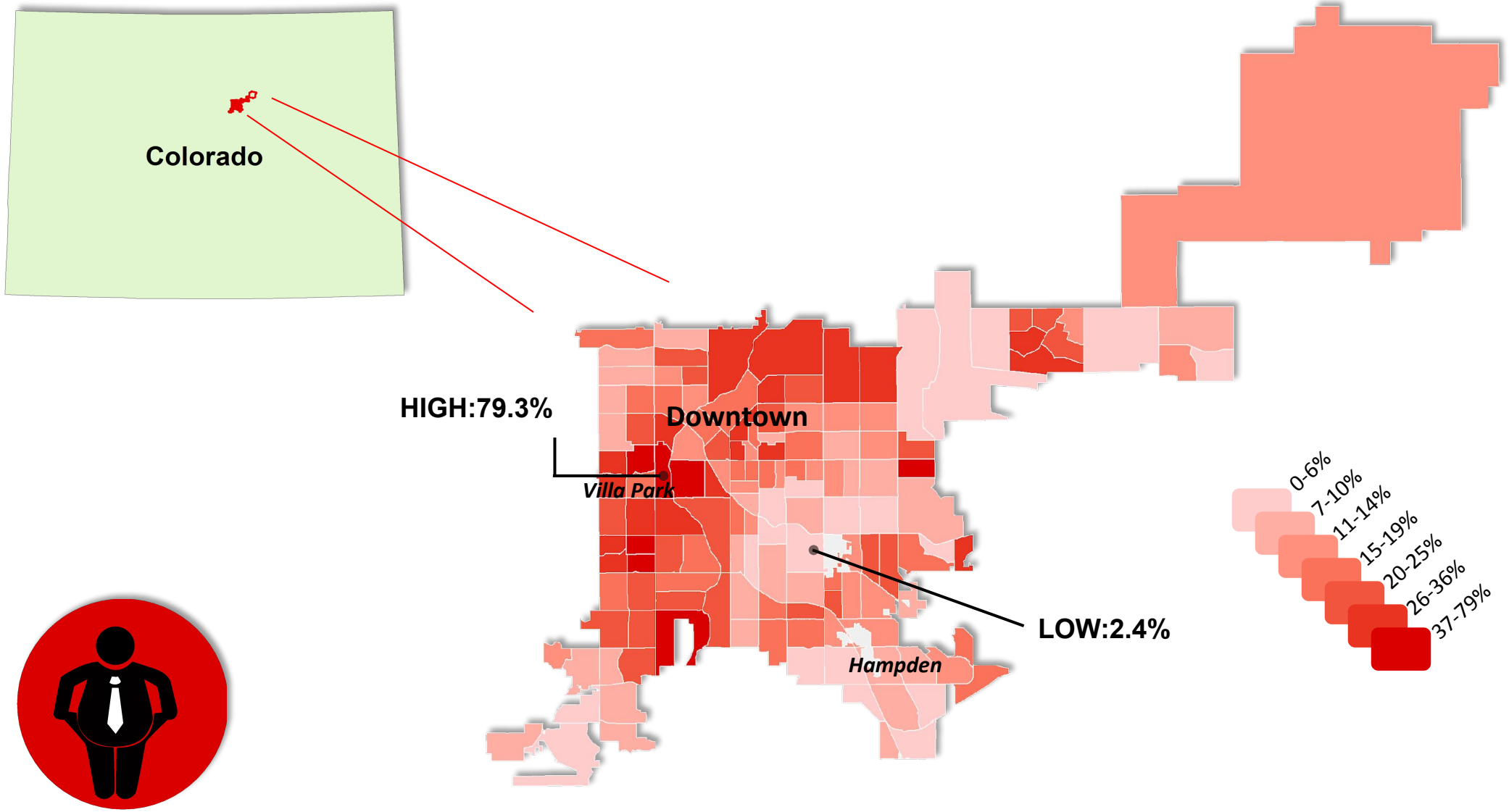
- Independent Variable: Overweight/Obesity rates in Denver County, Colorado (Census Tracts level)
- Dependent Variables:
    - Percent Poverty
    - Average Distance to Grocery Stores
    - Bike Trail coverage
    - Parks and Recreation
    - Percent of population sleeping less than 7 hours



Dependent Variable: Overweight/Obesity Rates

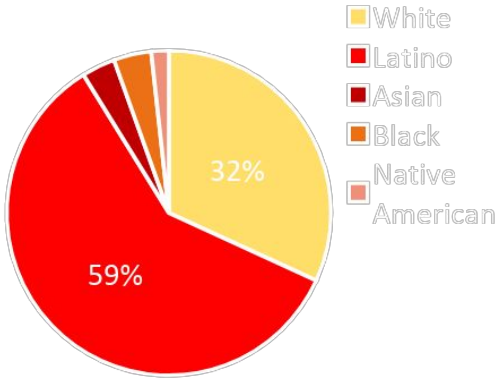


Variable 1: Percent Poverty

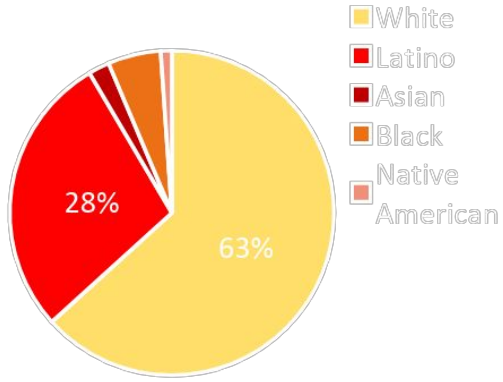


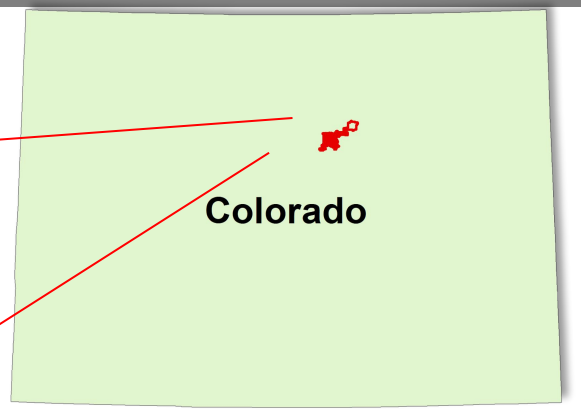
Bivariate Local Moran's I

High-High

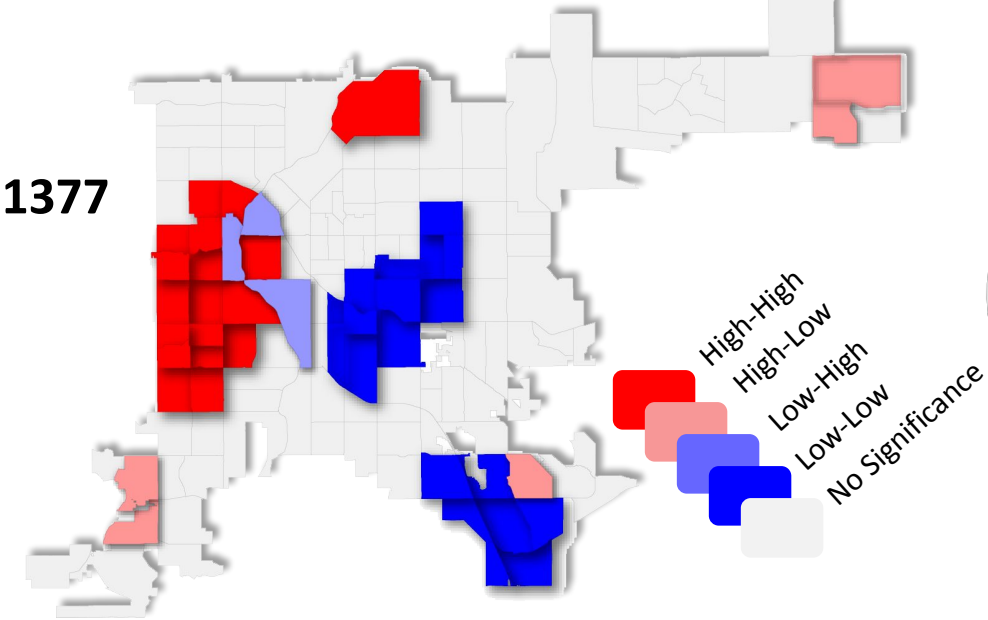


High-Low

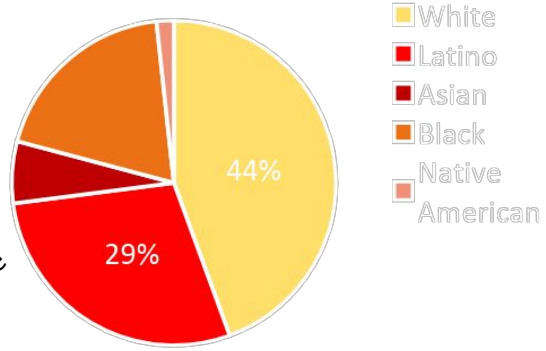




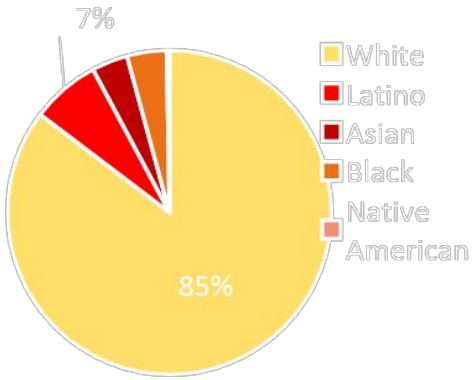
Moran's I: 0.1377



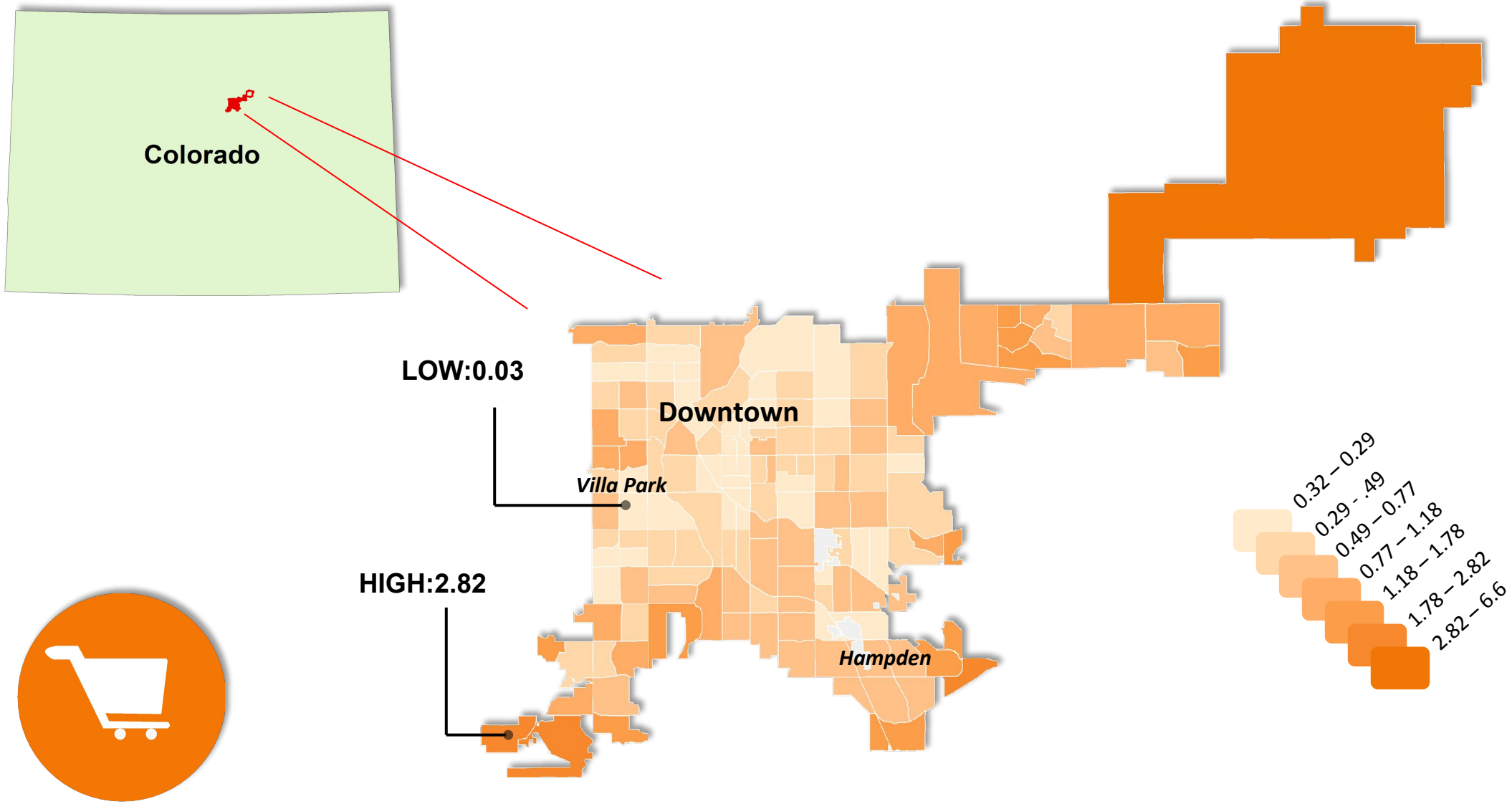
Low-High



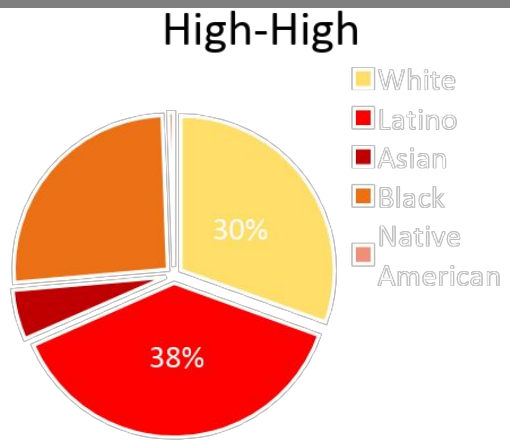
Low-Low

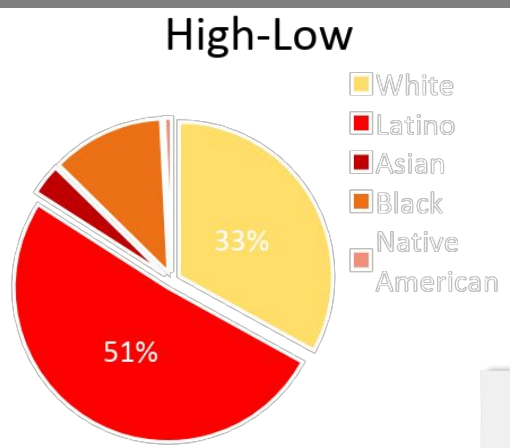


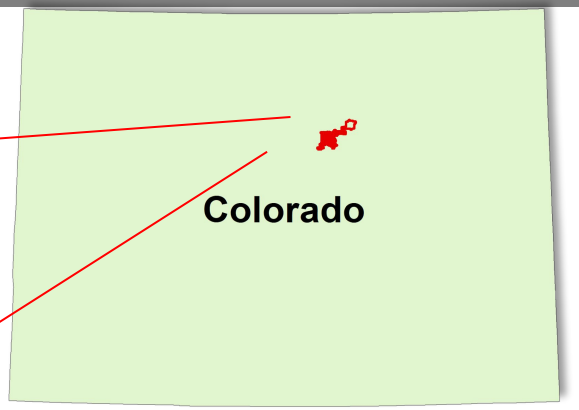
Variable 2: Distance to Grocery Stores



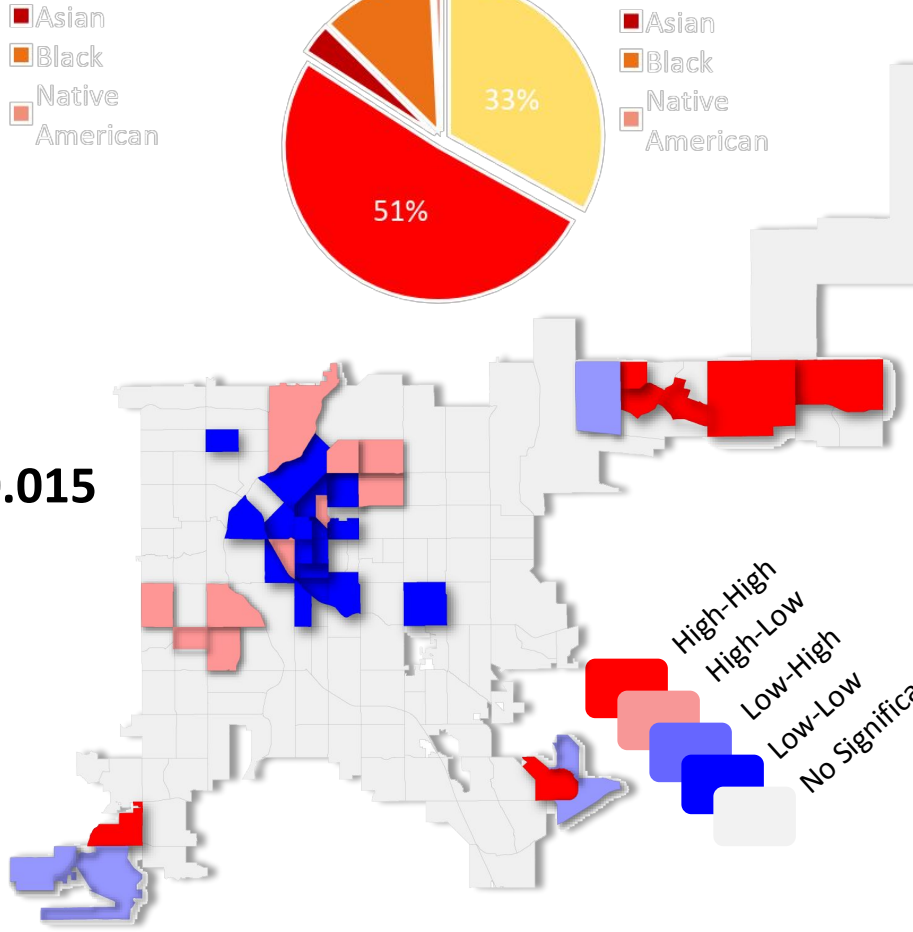
Bivariate Local Moran's I

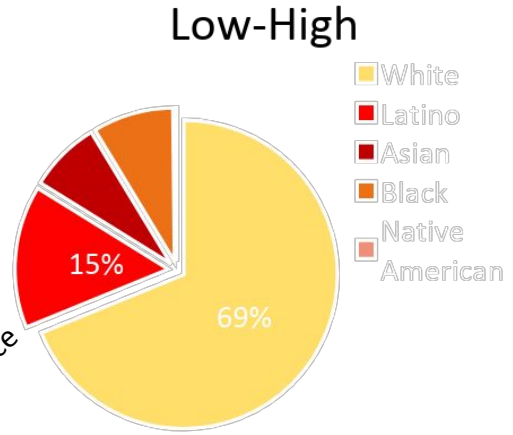


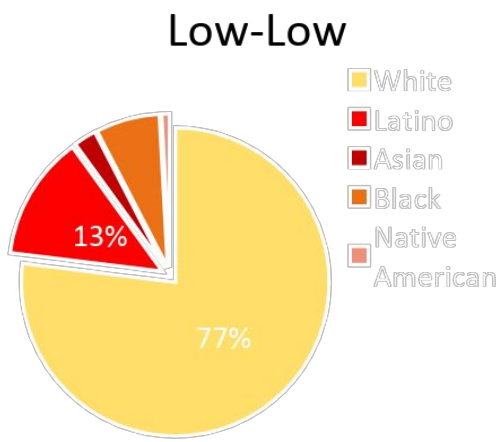




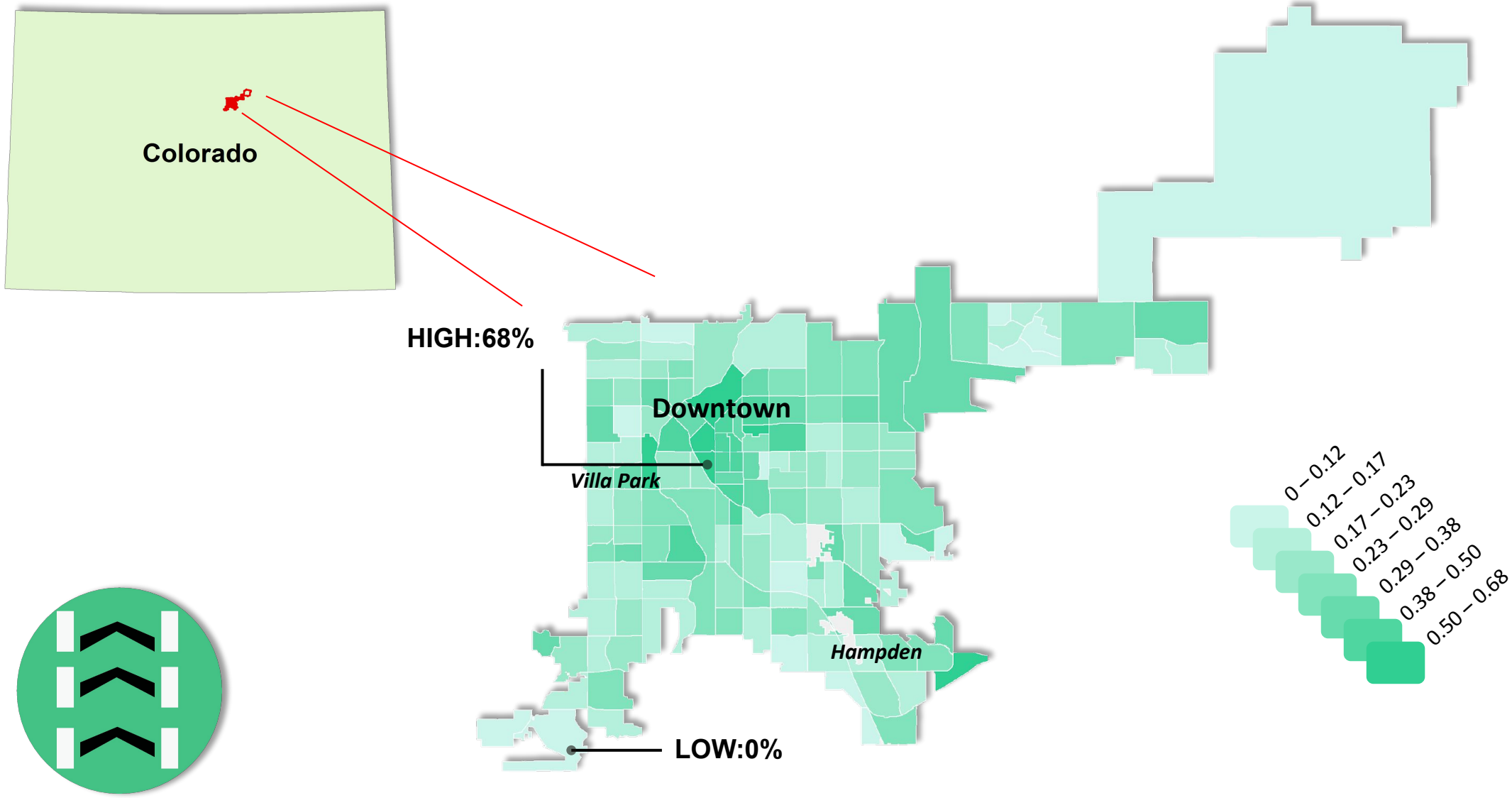
Moran's I: -0.015



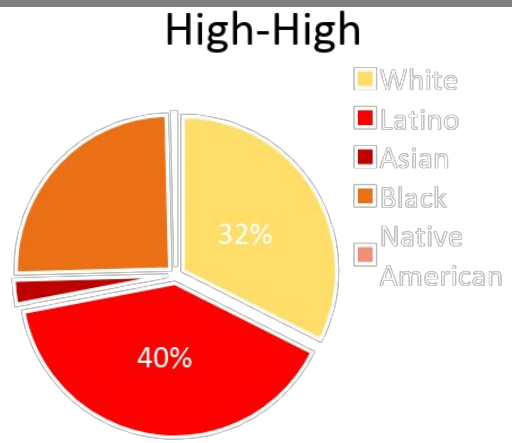


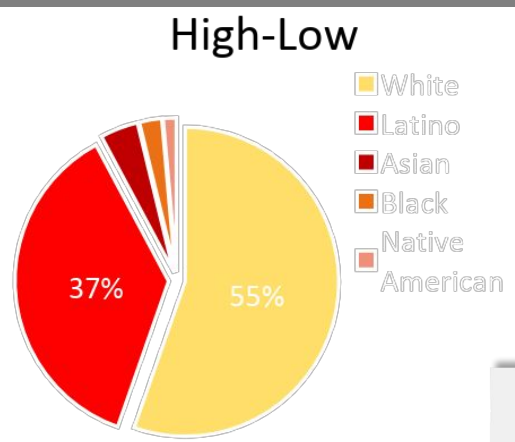


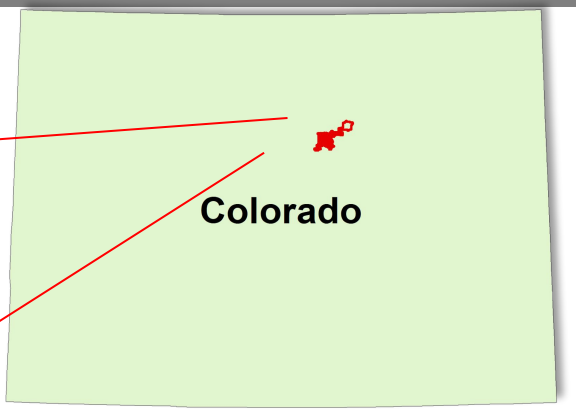
Variable 3: Bike Trail Coverage



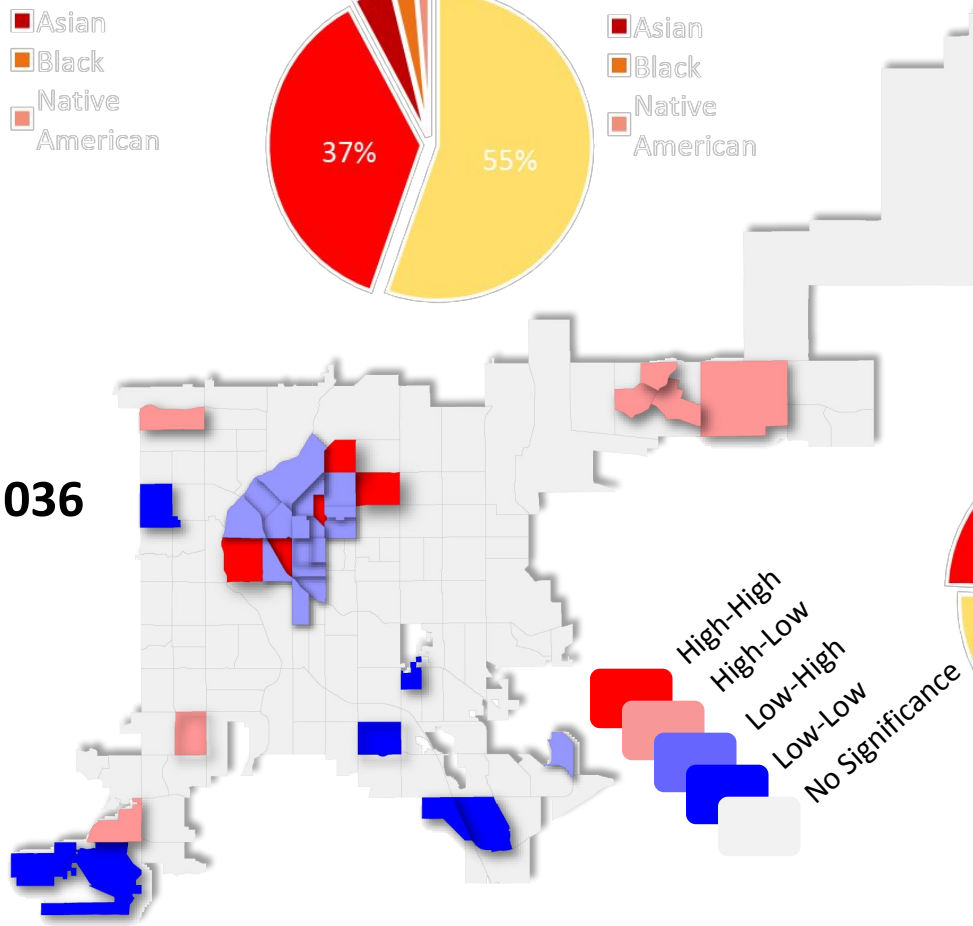
Bivariate Local Moran's I

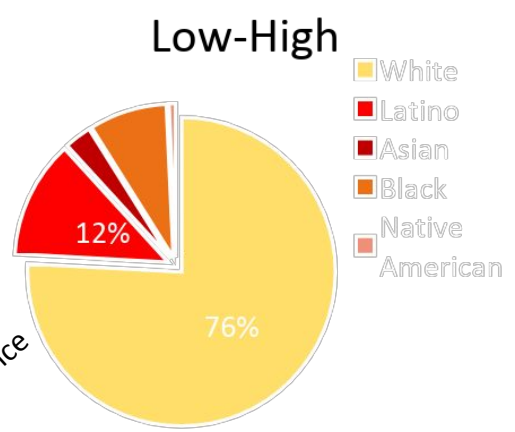


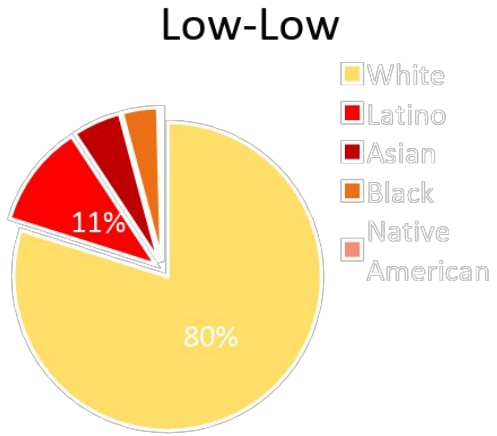


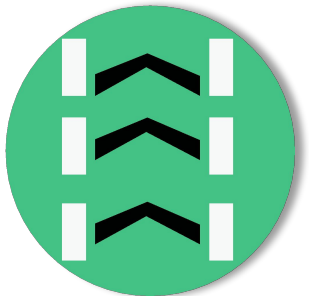


Moran's I: -0.036

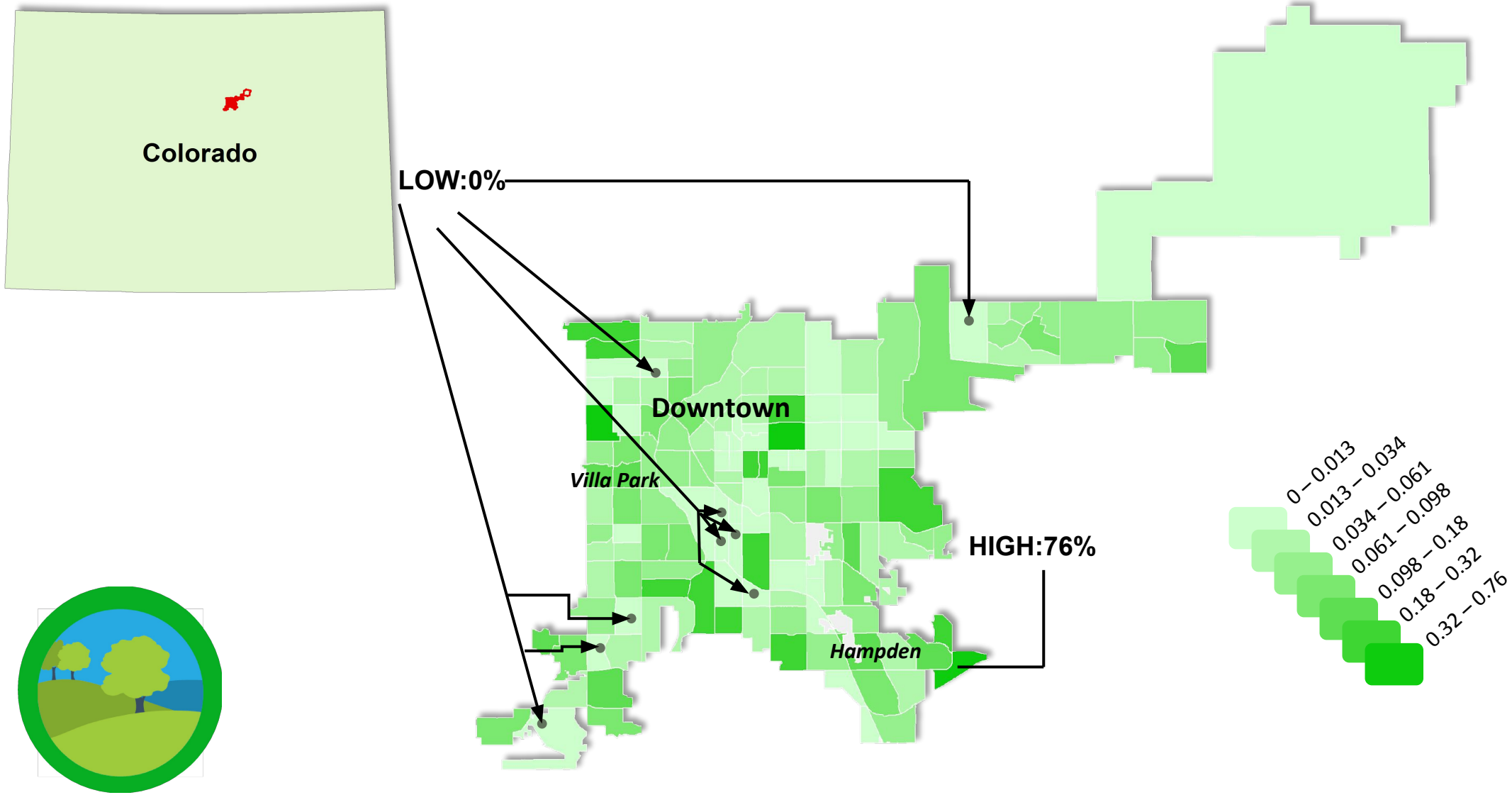




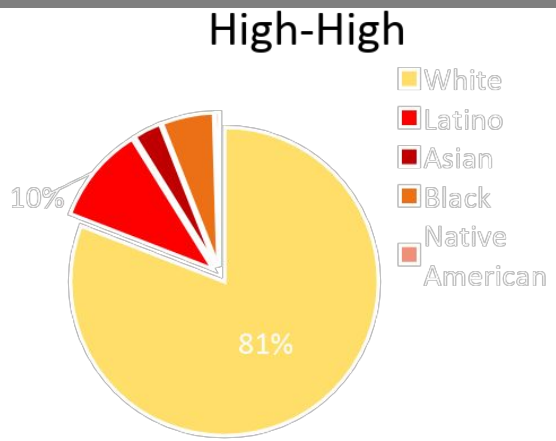


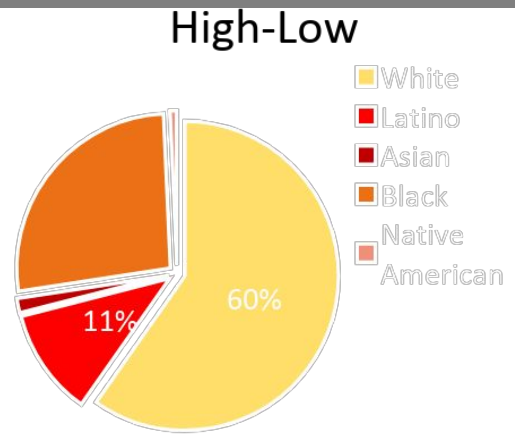


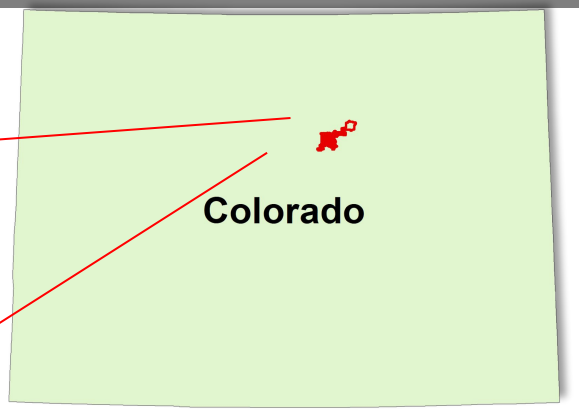
Variable 4: Parks and Recreation Coverage



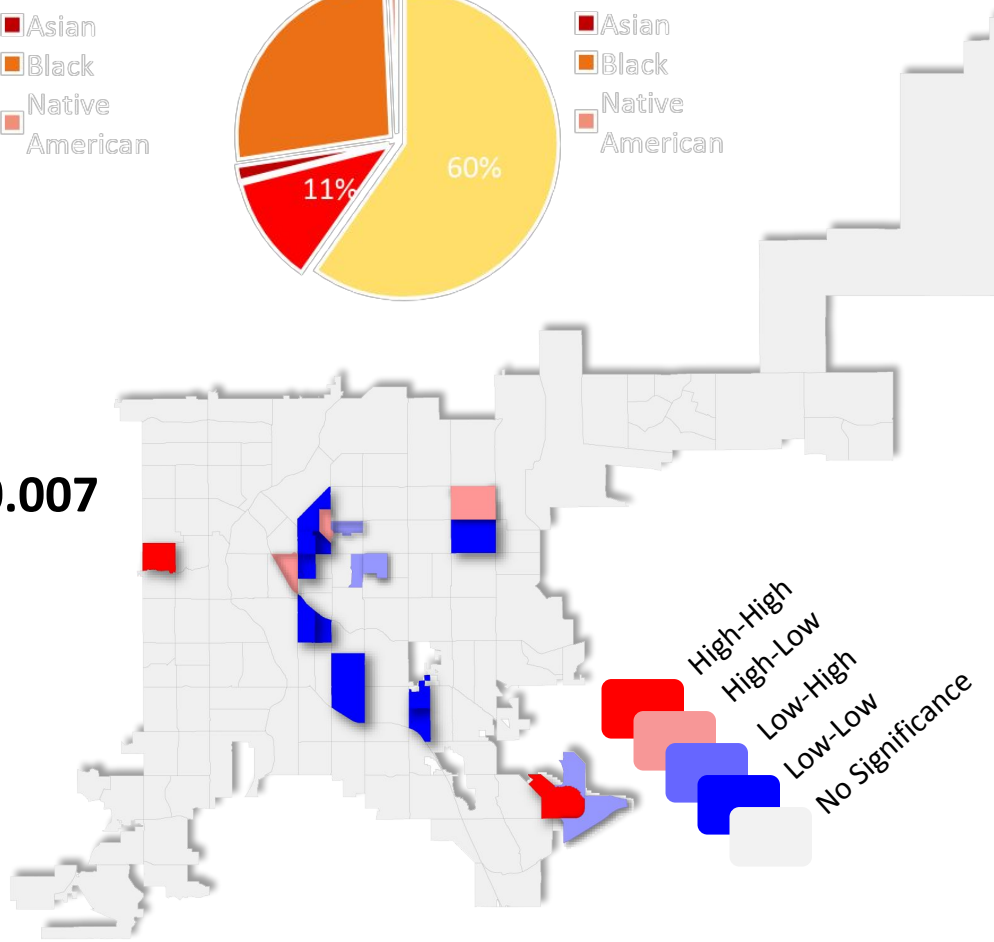
Bivariate Local Moran's I

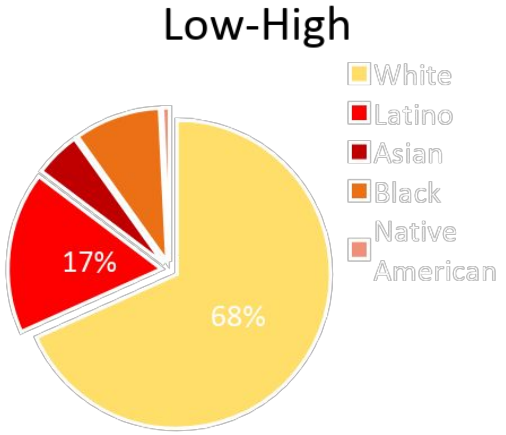


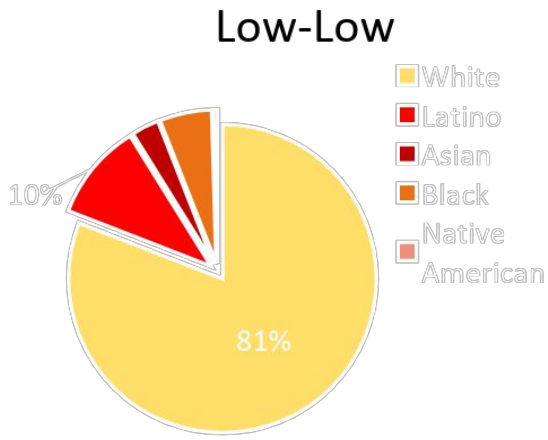




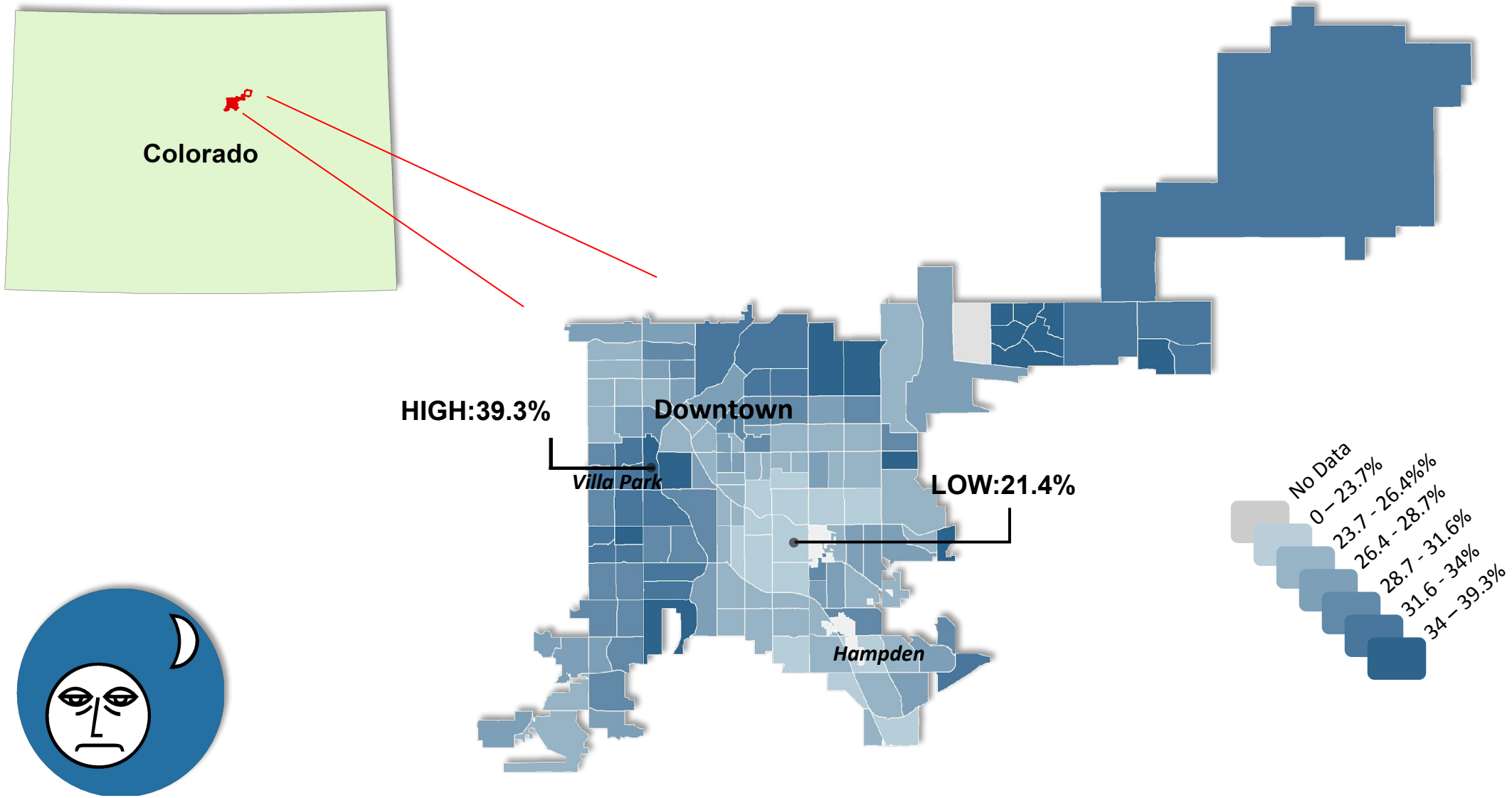
Moran's I: -0.007





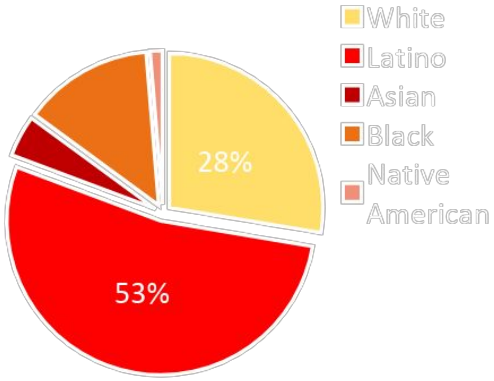


Variable 5: Percent Population Sleeping < 7 Hours

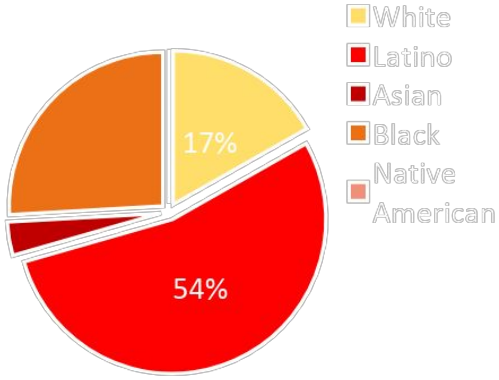


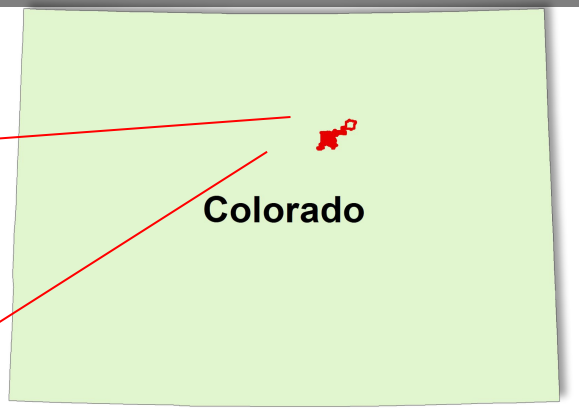
Bivariate Local Moran's I

High-High

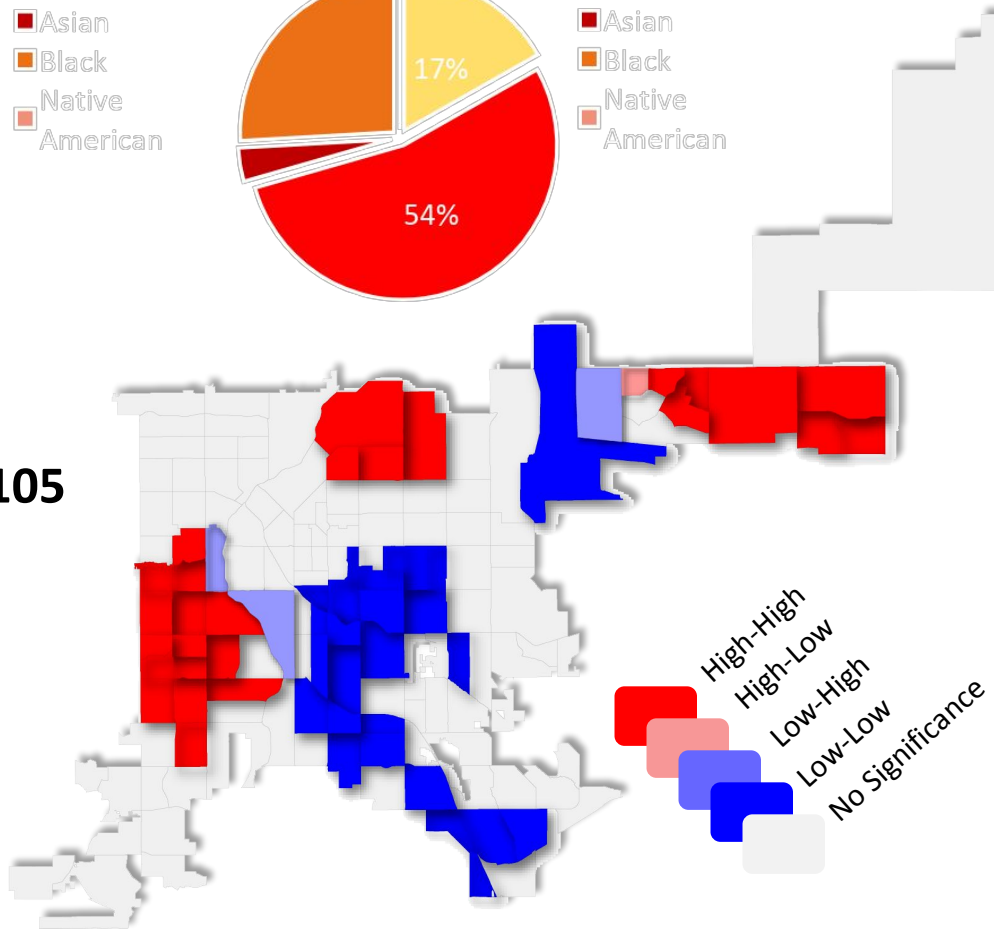


High-Low

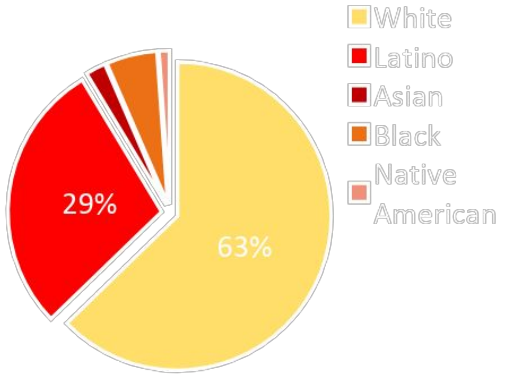




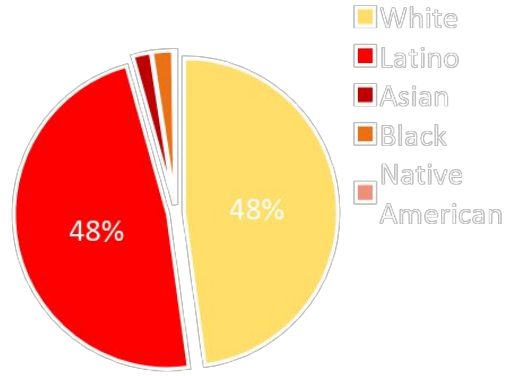
Moran's I: 0.2105



Low-High



Low-Low



Results of OLS Regression

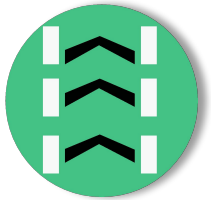
R-Square: *0.76*

Coefficient:
-0.20

P-Value:
0.0

Coefficient:
-0.15

P-Value:
0.0001



Coefficient:
-6.66

P-Value:
0.0015

Coefficient:
1.69

P-Value:
0.43

Coefficient:
1.33

P-Value:
0.0

OLS (*Cont'd*)

```
Moran's I: 0.1063

Lagrange Multiplier (lag):          0.1256
Robust LM (lag):                    0.0000

Lagrange Multiplier (error):        0.0403
Robust LM (error):                  0.00
```

OLS (*Cont'd*)

Diagnostics of Heteroskedasticity and spatial independence

R-Squared: 0.77

Breusch-Pagan test: 0.00

Likelihood Ratio Test: 0.03

Discussion/Conclusions

- Slight improvement from Spatial Error
- Global model well suits the overweight/obesity
- Not a local phenomenon